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AND DEVELOPMENT COMMISSION
COMMITTEE WORKSHOP
2005 BUILDING ENERGY EFFICIENCY STANDARDS

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COMMITTEE MEMBERS PRESENT

Robert Pernel, Commissioner, Presiding Member

Arthur Rosenfeld, Commissioner, Associate Member

Rosella Shapiro, Commissioner Advisor

STAFF PRESENT

Bryan Alcorn, Contract Manager

Bill Pennington, Project Manager

Elaine Hebert

Mazi Shirakh

Gary Flamm

ALSO PRESENT

Charles Eley

Larry Ayers

Eley Associates

Bruce Wilcox

BSG Associates

Ken Nittler, Enercomp

Doug Mahone

Lynn Benningfield

Heschong Mahone Group

Jim Benney, NFRC

Charles Cottrell, NAIMA

David Ware, Owens Corning

Gary Fernstrom, PG&E

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P R O C E E D I N G S

COMMISSIONER PERNELL: Good morning. I'm Commissioner Robert Pernell. I'm the Presiding Member of the Energy Efficiency Committee. I'd like to welcome you to this committee workshop on our Draft '05 Building Energy Efficiency Standards.

I'd also like to introduce Commissioner Rosenfeld, who is also a member of the Efficiency Committee. Commissioner Rosenfeld is to my left. To my right is my advisor, Rosella Shapiro, and Commissioner Rosenfeld's advisor will be here shortly, who is John Wilson.

The purpose of this workshop is to obtain public comment on the current round of the draft revisions to the standards, and ACM Approval Manual. The current draft revisions in the building standards and the ACM manual cover all of the areas of the standards, including indoor and outdoor lighting revisions.

Let me take this opportunity to thank the stakeholders and CEC contractors' teams, and the team of consultants funded by the utilities, for helping us with this draft today.

Commissioner Rosenfeld, do you have any

1 remarks you'd like to make at this time?

2 COMMISSIONER ROSENFELD: Welcome.

3 COMMISSIONER PERNELL: Before I
4 introduce Mr. Alcorn, Bryan Alcorn, who will be
5 conducting the hearing, I would like to take the
6 opportunity to go around the table. I know we
7 have some consultants and people at the table that
8 will be participating as we go through the
9 workshop today. I would like to have those folks
10 introduce themselves, starting maybe with Bryan
11 here.

12 MR. ALCORN: Okay. Thank you,
13 Commissioner Pernell. My name is Bryan Alcorn.
14 I'm the contract manager for this round of the
15 building standards.

16 MR. PENNINGTON: Hi, I'm Bill
17 Pennington. I'm the manager of Building Standards
18 and Development at the Commission.

19 MR. ELEY: And I'm Charles Eley, and
20 we're the prime contractor to the Commission on
21 this work.

22 MR. WILCOX: I'm Bruce Wilcox, and I
23 work on the residential part of the contracting
24 team.

25 MR. NITTLER: And I'm Ken Nittler, with

1 Enercomp. I'm also working on the residential
2 portion of the contract.

3 MR. MAHONE: I'm Doug Mahone from the
4 Heschong Mahone Group. We're consultants to PG&E
5 in the statewide codes and standards program.

6 MR. BENNEY: I'm Jim Benney, I'm
7 Director of Education for the National
8 Fenestration Rating Council. NFRC is the
9 supervising entity for the state.

10 MR. COTTRELL: Charles Cottrell, with
11 the North American Insulation Manufacturers
12 Association. I'm the Director of Technical
13 Services.

14 MR. WARE: Dave Ware, with Owens
15 Corning. I'm the Manager of Codes and Regulation.

16 MR. FERNSTROM: I'm Gary Fernstrom,
17 Pacific Gas and Electric Company, Senior Project
18 Manager, and original developer of the utility
19 codes and standards program.

20 MR. AHMED: A.Y. Ahmed, consultant to
21 Southern California Gas regarding codes and
22 standards.

23 MR. PIERCE: I'm Tony Pierce, with
24 Southern California Edison. I'm our codes and
25 standards program manager.

1 MR. MATTINSON: I'm Bill Mattinson, with
2 CABEC, California Association of Building Energy
3 Consultants.

4 MR. HODGSON: I'm Mike Hodgson with
5 ConSol. I'm Chair of the California Building
6 Industry Association's Energy Committee.

7 MR. HAMMON: Rob Hammon, with ConSol,
8 consultant to CBIA.

9 COMMISSIONER PERNELL: Thank you, and
10 welcome. And also, I want to welcome our
11 presenters and all of the guests here this
12 morning.

13 At this time I would like to turn it
14 over to Mr. Alcorn, who will conduct the workshop.

15 Mr. Alcorn.

16 MR. ALCORN: Thank you, Commissioner
17 Pernell.

18 I would like to welcome everyone to this
19 morning's workshop. I would also like to welcome
20 those that are listening in via Webcast, and I
21 hope there are many folks that are listening in by
22 the Webcast.

23 My comments are going to be brief. I
24 just want to say a few things. One thing is that
25 I want to acknowledge a couple of people for the

1 workshop here. One, I don't know if he's in the
2 room, I don't see him, is Jon Leber. I wanted to
3 thank him -- there he is -- for all of the review
4 and support that he has given staff to develop
5 this round of, the current draft that we have.

6 Regarding the agenda, we have a very
7 packed agenda today, and I want to make sure that
8 everyone has an opportunity to say their piece and
9 to ask questions. In order to help that process,
10 we've got cards. Some folks have already filled
11 these cards out. If you can get these cards
12 filled out and if you can give them, return them
13 to me as soon as possible, about what it is that
14 you might want to be commenting on today. Now, it
15 may be that as the workshop progresses you want to
16 make comments, you won't know about a comment now
17 but you will later. If you could please identify,
18 Elaine Hebert, she's standing to my right, by the
19 doorway, and Elaine will give you a card and she
20 can take the card from you and pass it along to
21 me. This will help us get, make sure that
22 everyone has a chance to speak today. So I thank
23 you if you could do that.

24 Also, regarding our, we're a little
25 backlogged on our photocopying. It may be that

1 some of you have the tan copy of the building
2 standards. Some of you may not. We're in the
3 process of making those, and during the next 45
4 minutes, or hour or so, our print shop will be
5 delivering those to the table outside. So Elaine
6 will try to make sure that each of you has a copy
7 of the building standards, if you don't already.

8 One final comment about the microphones.
9 I'd like to try and remind everybody that when you
10 speak today, if you could speak into two
11 microphones. The taller mic is the mic for the
12 Commission's PA system and that's what goes out to
13 the Webcast. And the shorter microphone goes to
14 the transcriber's recording machine. And I would
15 like to also point out the transcriber is Peter,
16 he's across the table from me. He might wave at
17 you if he finds that you're not speaking into the
18 microphones. So please try to be aware of that.

19 Also, if you are in the audience and not
20 sitting at the table near a mic, if you do need to
21 make a comment please approach the lectern and
22 speak your name and your affiliation, and make
23 your comments.

24 Okay. That's -- sure, one more comment
25 from Elaine Hebert.

1 MS. HEBERT: Elaine Herbert with the
2 Energy Commission.

3 I'm going to need to disappear now and
4 then to take care of things outside this room, so
5 if you have comment cards through the day and you
6 don't see me, just feel free to come up here and
7 give them to Bryan directly. And the blue ones
8 are for most of the topics, and the beige ones are
9 specifically for lighting topics. If we run out
10 of either, you can substitute, but if I'm not
11 here, please make sure you bring them up here.

12 So, thanks.

13 MR. ALCORN: Great. Thank you, Elaine.

14 Okay. With that, I think we're ready to
15 start the workshop. And I'd like to turn the
16 floor over to Charles Eley and Bruce Wilcox to do
17 an overview of the residential revisions to the
18 standards and ACMs.

19 MR. ELEY: To begin with, you have four
20 documents in front of you. There's the -- well,
21 maybe not all of you have four documents, but you
22 will soon. There's the standard, of course. Then
23 there's the residential ACM manual in the blue
24 cover, the non-residential ACM manual in the green
25 cover.

1 There's a fourth document which is
2 called Joint Appendices. What we realized in
3 putting these documents together is that a lot of
4 information was common to both standards. For
5 instance, the climate data, you know, the
6 definition of climate zones, the glossary, the
7 procedures on how you calculate U-factors, and
8 finally, the data on time dependent valuation.
9 All of those things are common to both the
10 residential and the non-residential standards.

11 So for clarity, those are published in a
12 joint appendix. You can think of this appendix as
13 belonging to both the residential ACM and the non-
14 residential ACM, but it's exactly the same
15 material.

16 What we're going to do today is to try
17 and maximize the time for participants to make
18 their comments, so we're going to keep the
19 presentation very brief. And we're going to try
20 and sort of highlight the changes that have been
21 made since the November draft, and just very
22 lightly touch on things. We're going to go
23 through it on kind of a measure by measure basis,
24 as we did before, and highlight kind of what's
25 changed.

1 There's a few general measures, and
2 these, these are common to both res and non-res.
3 With regard to time dependent valuation, there
4 have really been no changes other than providing
5 some documentation of the TDV values. Those are
6 in Appendix Roman numeral 3 of the Joint Appendix.

7 We are, the data is not actually there.
8 We're treating it the way we did climate data,
9 where, since the data is so lengthy, we're talking
10 about close to 100,000 numbers, so just like the
11 climate data, that's available in electronic form.
12 So what's in here is a summary.

13 With regard to gas cooling, again, there
14 have been no changes since the November draft. We
15 do have some requirements in Section 111 for gas
16 engine heat pumps and air conditioning units, and
17 there's new modeling rules in the ACM.

18 For PV, the, again, there's no changes.
19 A pre-wiring requirement is still being
20 considered, but that's, there's no language in the
21 standard as of yet. And the same for demand
22 responsive controls.

23 And the moving into the residential
24 measures, Bruce, you may want to step in here, but
25 we have a new appendix, Appendix ACM RQ, which has

1 procedures for verifying construction quality for
2 walls and attics. And there have been some
3 revisions to that procedure since the November
4 draft.

5 MR. WILCOX: Certainly. Yeah, the
6 November draft had a inspection protocol that
7 called for testing all different kinds of
8 insulation systems in walls and attics. We've
9 done a lot of, we've done some testing of the
10 procedure, and we've looked into all the details
11 of how this stuff works and what it means. And as
12 a result of that, we've eliminated testing
13 requirements for insulation in walls, and in a
14 minute we'll talk about the attics.

15 The other thing I should say is that the
16 ACM Manual may look a little different to those of
17 you who have looked at it before, because Charles
18 took on this monumental intellectual task of
19 trying to reorganize the ACM Manual to have it
20 make more sense and be easier to read and
21 understand, which I'm not sure, I have to give him
22 some credit now because I'm not sure who else
23 would ever give anybody credit for that. But it
24 certainly was a huge task.

25 MR. ELEY: Thankless job.

1 (Laughter.)

2 MR. WILCOX: And very much needed, so.
3 Anyway, the new appendix is called RQ, for
4 construction quality.

5 MR. ELEY: One of the things that we've
6 tried to do is to move the field testing protocols
7 into the appendix. And a lot of the algorithms
8 that were previously in the appendix have been
9 moved into the algorithms chapter of the ACM
10 Manual, where I think they properly belong. So
11 that was the challenge that Bruce is alluding to.

12 MR. WILCOX: Yeah. Those may cause a
13 lot of trouble because now that you can understand
14 it, you may not like it. But we decided we'd live
15 with that.

16 (Laughter.)

17 MR. ELEY: The intent is not to change
18 the algorithms, but just to put them in one place.

19 MR. WILCOX: Okay. So in terms of
20 attics, again, we revised the criteria for the
21 inspections. We've spent a lot of time working
22 with the industry to try and get the words right
23 and the definitions right and make sure everything
24 is clear. And we eliminated the testing except
25 for the case of loose fill mineral fiber

1 insulation in attics, where the certification of
2 high quality construction requires one measurement
3 of the amount of insulation that's installed.

4 For cellulose attics, we've done a lot
5 of tightening up of the criteria for initial depth
6 of the insulation and long-term settled depth of
7 the insulation, and when those criteria apply and
8 what readership uses the criteria when he inspects
9 the attic. So I think we've made a lot of
10 progress on both making this approach much more
11 practical and efficient and realistic to do, and
12 also to deliver the quality results we're really
13 looking for.

14 MR. ELEY: I might note that the version
15 of Appendix RQ that's in the blue ACM Manual is,
16 there will be something on the table outside in a
17 couple of minutes that will update this. So keep
18 that in mind.

19 With regard to residential fenestration,
20 there have been no changes in the way, in the
21 maximum window area, although it's been clarified
22 for multi-family. And, but one thing that did
23 change is the U-factor criteria was adjusted to be
24 consistent with the NFRC rating procedures.
25 Again, there's no intent to change the criteria.

1 The type of window that would've complied
2 previously will still comply, it's just that the
3 numbers are different because of the NFRC test
4 procedure changes.

5 With regard to window replacement,
6 again, there have been no changes since the
7 November draft. Section 152(a) and (b) requires
8 that window replacements in existing homes comply
9 with the standard, and this is a significant and
10 new requirement.

11 In terms of alterations and additions, there
12 have been three important changes. Section
13 152(b)1D requires that new space conditioning
14 ducts be sealed in climates 2 and 9 through 16.
15 So this would apply to alterations in existing
16 buildings.

17 MR. WILCOX: Duct insulation is
18 required, as well.

19 MR. ELEY: Yeah, and duct insulation is
20 required, as well. Basically, all the duct
21 requirements for new construction apply in this
22 situation.

23 And 152(b)1E requires that existing
24 ducts be sealed in climates 2 and 9 through 16,
25 when the space conditioning system, when a new

1 space conditioning system is installed or
2 replaced. The replacement includes replacement of
3 the air handler, the cooling coil, the heating
4 coil or the furnace heat exchanger. It does not
5 include replacement of the outdoor unit, so if
6 you're just replacing the condenser unit sitting
7 outside on a concrete pad, that does not trigger
8 having to seal the ducts.

9 And there's also an exception for newer
10 homes that may have had the ducts previously
11 tested. Yeah, that's right, and if you have less
12 than 40 lineal feet --

13 MR. WILCOX: Yeah, item D.

14 MR. ELEY: -- that's excepted. Okay.

15 One other thing. In additions and
16 alterations you're allowed to add up to 50 square
17 feet of windows, that's for 100 square foot
18 addition, I believe.

19 Another change that we've made. The
20 CF1-R and the C2-R have sort of become very
21 redundant. So we've eliminated the C2-R and we
22 have a computer version, or a computer method
23 version of the CF1-R that includes all that
24 information. So it would just be one compliance
25 document now, not two. And really, there's, we're

1 not losing any information. It's just that it's
2 being consolidated into one document instead of
3 two.

4 This I guess is really more of a
5 clarification. Bruce, you may want to note this,
6 but -- expand on this, but we, the footnotes have
7 been added, or restored, I guess, in Table 152(c),
8 so that there is a prescriptive package that's
9 available that does not require third party field
10 verification of measures.

11 MR. WILCOX: That's correct. That was
12 in the previous version of the standards, and
13 we've now gone through and updated the values to
14 match the current version. They're also, if you
15 look at that table, it's also been completely
16 reformatted so that it's, it now is much more
17 condensed and takes up a lot less space, easier to
18 understand and use, we hope.

19 MR. ELEY: Yeah. Previously we had 16
20 different tables, and those have been consolidated
21 to two. There's one table for, that has all of
22 the Package D measures with different columns for
23 the climate zones. So it's a more compact and, I
24 think, better format for the data.

25 In terms of the requirement for maximum

1 allowable cooling capacity, there have been no
2 changes since the November draft on this one.

3 In terms of residential ducts, there's,
4 this is the change that would require R-8 instead
5 of R-4 in most climates. Since that time there
6 was a proposal from Beutler to acknowledge the
7 benefit of ducts that are buried in insulation in
8 the attic, and that proposal has been accepted in
9 general, but it hasn't yet been implemented in the
10 res manual. This would go into, I guess, Appendix
11 F, R-F, or --

12 MR. WILCOX: Yeah, it actually goes into
13 a couple of places in the res ACM Manual. There's
14 a copy of the proposal in its current form that
15 was on the table outside. It says "Compliance
16 Using Ducts Buried in Attic Insulation." And this
17 is a very interesting proposal that, for some
18 types of houses, for some builders, may turn out
19 to be very useful and cost effective way to
20 provide a more efficient system.

21 Basically, instead of installing the
22 ducts hanging from the roof duct, you install the
23 ducts lying on the floor of the attic and then
24 cover them up with blown ceiling insulation,
25 either fully or partly, and they get more or less

1 credit for the R value, depending on how deeply
2 buried the ducts are in the insulation.

3 It's a complicated method. You have to
4 do a complete duct design and specify the surface
5 area of each branch of each duct, so that -- and
6 which ones are going to be buried and how much, so
7 it's only usable, really, in the context of
8 someone who's doing multiple production housing,
9 probably, and but in that context, it may work
10 very well. It's impossible, probably, to bury all
11 the ducts in any normal house, so you really do
12 have to keep track of all the different
13 variations.

14 This is based on research that was done
15 by Stephen Winters Associates as part of the Build
16 America program, and it really represents kind of
17 a very creative approach to how to make houses
18 work better, and we're hoping to make it work in
19 the standards.

20 MR. ELEY: This may be a, you know, a
21 more cost effective alternative in some cases.

22 In terms of the computer modeling
23 changes, there have been no changes since the
24 November draft. Those were presented at that
25 time, and there's no differences.

1 In terms of the HVAC duct model, the
2 hourly adaptation of that, the only thing that's
3 been changed is that the procedure which was
4 previously in ACM Appendix F has been moved to
5 Chapter 4, which has the algorithms. And the
6 procedure before kind of used mixed units, part of
7 the units were metric and part of the units were
8 inch/pound. And that's been changed so that the
9 equations are now expressed in inch/pound units.

10 And I guess there were a couple of
11 corrections or errors to the TDV equipment model.

12 MR. WILCOX; Yeah. Well, there were
13 some errors in the documentation in the ACM
14 Manual, so, and there is supposed to be an errata
15 package that was printed for today, and I guess
16 that's one of the things that's not complete yet.
17 But there's a couple of equations that have
18 corrected coefficients and different numbers.
19 None of these change any of the results that are
20 in the Micropas program or in the previous TDV
21 spreadsheet. Those were all done correctly, it
22 was just the write-up that was wrong, fortunately.

23 Everyone's smiling over here. The
24 owners of the hundreds of thousands of Micropas
25 runs.

1 MR. ELEY: You don't have to redo those
2 runs. The software's fine.

3 There's no changes to the night
4 ventilation models that were presented last time.

5 In terms of the hourly water heating
6 calculations, the primary change here is there
7 were a few errors in ACM Appendix RN that were
8 corrected, having to do with standby loss in large
9 storage water heaters that didn't affect the
10 smaller water heaters that use energy factors.

11 But probably the most significant thing
12 is that a section has been added to Chapter 3 of
13 the Res ACM. Chapter 3 of the Res ACM is where we
14 define the standard design. So there's a table
15 there that more clearly defines the
16 characteristics of the standard design water
17 heating system for both single-family and multi-
18 family buildings. That language previously was in
19 the standard, but it was, but there were a lot of
20 things that were not clear about it, so this is a
21 much more clear and detailed presentation of the
22 standard design.

23 In terms of the water heating
24 distribution loss credits, or performance factors,
25 there have been no changes to those.

1 In terms of water heating in multi-
2 family, again, there have been no changes other
3 than clarifying the definition of the standard
4 design. I guess just yesterday there were a few
5 other errors in the, having to do with the
6 recirculation part of the multi-family that have
7 been corrected. Those will show up in the next
8 draft.

9 Again, those wouldn't affect, those
10 would only affect your calculations if you were
11 using a multi-family unit with a recirculation
12 pump.

13 All right. Moving on to the lighting
14 measures. We still have the definition of the
15 high efficacy luminaire, and that's unchanged
16 since the November draft. Basically, if it's less
17 than 50 watts it has to have a 40 lumens per watt,
18 50 lumens per watt if it's between 15 and 40, and
19 60 lumens per watt if it's over 50. Also,
20 electronic ballasts are required if the lamp audit
21 is greater than 18. And there's also performance
22 requirements dealing with RFI and EMI.

23 In kitchens there's no changes since the
24 November draft. Essentially, permanently
25 installed luminaires must be high efficacy in the

1 kitchen, but up to 50 percent of the power is
2 excepted from this requirement if it's switched
3 separately.

4 In bathrooms and support spaces, again
5 no change. This requires that permanently
6 installed fixtures be high efficacy luminaires,
7 unless they're controlled by a manual on motion
8 sensor.

9 And in terms of pendant, track and
10 recessed luminaires, again, no change. These have
11 to be high efficacy luminaires, unless they're
12 controlled by dimmer.

13 And in terms of recessed luminaires in
14 insulating ceilings, again there's no change.
15 These luminaires have to be of Type IC, which
16 means that insulation can be installed in direct
17 contact with the luminaire. And the luminaires
18 also have to be rated as airtight. They have to,
19 the air leakage has to be less than two cubic feet
20 per minute when the pressure difference is 75
21 pascals.

22 In terms of exterior lighting, all
23 luminaires must be high efficacy unless they're
24 controlled by a motion sensor, or unless they're
25 installed in or around a swimming pool or a water

1 feature.

2 Since November, in the November draft
3 there was an exception for low voltage lighting,
4 and that's been eliminated, that exception has
5 been eliminated in this draft. So the low voltage
6 luminaires would have to be high efficacy, or they
7 would have to be controlled by a motion sensor.

8 In terms of parking lots and garages,
9 this would mainly be applied to multi-family
10 buildings or, I guess, a very large single-family
11 home. If the garage or the parking lot is for
12 more than eight vehicles, then it must comply with
13 the non-residential lighting requirements for
14 either parking lots or garages.

15 And, finally, common areas in multi-
16 family buildings. This would include lobbies and
17 hallways. These would, the luminaires in these
18 locations must be high efficacy luminaires, unless
19 they're controlled by a motion sensor.

20 Thank you.

21 MR. ALCORN: Okay. Thank you, Charles.

22 Okay. We're going to start our question
23 and comments for the residential issues that
24 Charles just went over. So I'd like to call --
25 can we have some lights, please? Thank you,

1 Elaine.

2 The first person that is going to
3 provide comments is David Springer, Davis Energy
4 Group. David.

5 MR. SPRINGER: Thank you, Bryan. Dave
6 Springer, Davis Energy Group, hired gun.

7 (Laughter.)

8 MR. SPRINGER: I was asked yesterday by
9 David with A Triple E as to safety comments about
10 ground coupled heat pumps, and as some of you know
11 there is a residential interim method for
12 compliance with ground coupled heat pumps which
13 equates the SEER to the EER under ARI330 testing,
14 which is done at a 77 degree water temperature,
15 and there's a calculation method for HSPF, which
16 is the COP times 3.2 minus 2.4. And then the HSPF
17 is entered into the residential ACM as if it were
18 an air source heat pump.

19 And the, we've done some work for PG&E
20 and the International Ground Source Heat Pump
21 Consortium, and determined that the SEER, EER
22 equivalency is very reasonable and fair. The HSPF
23 equivalency is not quite so reasonable, but still
24 we, I think we'd like to see the interim method
25 since it's been in place for over three years, see

1 that adopted into the residential ACMS.

2 I know that this is, this morning's
3 session is on residential, but I'd like to quickly
4 put in a word about non-residential so I don't
5 have to come up again in the afternoon. And my
6 pitch there is that there is a very good ground
7 coupled heat pump model that's been thoroughly
8 calibrated, that's tied to versions 1.10 and later
9 DOE 2.1E, and also is in DOE 2.2. And I don't
10 know if there is a plan afoot to update the DOE 2
11 model attached to the ACMS, but we would like to
12 see that model adopted and along with the ground
13 coupled heat pump model.

14 The other thing, final thing I have to
15 say about the standards is that in looking at the
16 draft standards, ARI 330-98 is referenced in
17 Appendix 1A, and that should be updated to
18 ARI/ISO-13256-1, so that it's consistent with
19 what's in Table 112B.

20 That's all I have.

21 MR. PENNINGTON: Could you give us that
22 last reference in writing, David?

23 MR. SPRINGER: Sure.

24 MR. PENNINGTON: We'd appreciate it.

25 In general, we've got a very limited set

1 of resources to do this project in, and the scope
2 of the project was defined by the committee last
3 January. And one of the conclusions of that was
4 that we would consider new compliance options
5 after the adoption of the standards, if the
6 Commission has resources at that time.

7 So I don't anticipate we could jump on
8 this and, you know, crank out a compliance option
9 for ground source heat pumps at the same timeframe
10 that we're doing the rulemaking proceeding here.
11 We would definitely be open to compliance option
12 proposals from the industry for that.

13 MR. ALCORN: Okay. Thank you, Dave,
14 Bill.

15 The next commenter is Mike Hodgson,
16 representing CBIA, I think.

17 MR. HODGSON: Thank you, Bryan. Yes,
18 I'll be representing CBIA as their Energy
19 Committee Chair. Bob Raymer, their Technical
20 Director, is not available today due to illness in
21 his family.

22 To make some general comments on the
23 standards, and I'll try to keep them fairly brief.
24 In general, I'd like to talk about costs, the
25 impact on affordable housing, and the lack of

1 commitment to addressing the existing housing
2 market, and some suggestions for resolution to
3 that.

4 But first I'd like to acknowledge the
5 staff and their consultants for their thorough
6 work and continuing dialogue. The building
7 industry does not have the resources that the
8 state and the utilities have to review these
9 standards, so we must carefully choose how we
10 spend our time.

11 Our revised analysis that we've been
12 working on as a working group, with oversight from
13 staff, is being handed out as I speak.

14 Second, I'd also like to acknowledge the
15 building industry supports Rob Hammon and Chad
16 McGhie for performing what we think is a most
17 thoughtful analysis of any energy code since its
18 inception.

19 Let me start my comments really first
20 with the impact on the affordable housing market.
21 Recently, the Governor's Office, three weeks ago,
22 released their report on housing California's
23 population in the 21st Century. I'd just like to
24 read a summary on the barriers to building to
25 affordable housing quickly.

1 It states, "Regulatory
2 policies designed with good
3 intentions to promote orderly
4 growth, protect public safety,
5 and preserve the environment
6 have backfired and negatively
7 affected the supply side of
8 the housing market by
9 discouraging housing
10 construction and increasing
11 the costs of home building.
12 The cumulative effect of
13 government regulations is
14 hampering the market from
15 meeting the rise in demand,
16 and as a result, home
17 ownership has become more
18 difficult for everyone,
19 especially for the first-time
20 home buyers in the Latino and
21 African-American communities.

22 "Based on 1999 data, even
23 a five percent increase in the
24 median price of detached
25 single-family homes can force

1 as many as 222,446 households
2 out of the market just in
3 California alone. Thus,
4 easing the price effect of
5 government regulations on home
6 building could potentially
7 help a large number of
8 families realize the American
9 dream."

10 I don't think it's only the building
11 industry that acknowledges cost is important to
12 the home consumer and to the home purchaser. We
13 want everyone to realize that cost impacts have an
14 impact on the market; it prices people out of the
15 market.

16 I would also like everyone to realize
17 that so far, we have not, the building industry,
18 nor has the Commission done any cost effectiveness
19 on multi-family housing. And that is our most
20 affordable segment, and we're looking forward to
21 that data.

22 As for costs in general, for a medium
23 sized home the cost of these standards is
24 approximately \$2,050. Assuming an increased
25 market share for third party testing, which is

1 what we discussed last week in a working group, we
2 doubled it to what the market is doing currently.
3 These increased costs were reduced only to \$1719.
4 So the difference that the Commission and their
5 consultants give us on cost of housing and the
6 building industry, one of the primary differences
7 is the analysis is done on a real house. We
8 actually look at a 1940 square foot house that has
9 19 percent glazing, actually built.

10 We use four market approaches to
11 determine typical cost. We will not go into the
12 explanation of that here today. The CEC and the
13 utilities met last week to review our costs, and
14 gave us substantial constructive criticism. We've
15 amended our analysis to reflect these lower costs,
16 and we shared that -- and are willing to share
17 that with staff at any time, and we've added a
18 compliance option for combined third party
19 inspections with a single fee. And the features
20 that we combined were tight ducts, TXVs and EER
21 with a single inspection fee.

22 But still, the cost is \$2,050 per home.
23 And that's broken into about \$1400 of increased
24 construction costs, from the compliance
25 stringency, and about \$620 from the mandatory

1 features. So these costs are too high to be
2 acceptable to the building industry.

3 The third concern is the lack of
4 commitment addressing the existing marketplace.
5 Less than two percent of the housing market is
6 expanded each year by new homes. Ninety-five
7 percent of the market has not been addressed by AB
8 970 changes; 70 percent of the market has been
9 built prior to any energy code in the state.
10 California currently has the most stringent energy
11 code in the nation, and the building industry
12 thinks it's reached its maximum cost
13 effectiveness.

14 How will the California market achieve
15 peak load reserve capacity if it does not address
16 the existing market. What we'd like to see is the
17 Energy Commission restart the HERS process. We
18 think this is very important for the retrofit
19 market to give these folks a cost effective option
20 of improving their housing stock.

21 The additional cost of the \$2,000 of
22 this code is substantial. The building industry
23 recognizes that the majority of this cost, other
24 than the mandatory features, are due to the
25 appliance standards that impact our market in

1 2006. We have a few suggestions on how to reduce
2 those costs.

3 One is to reduce the duct insulation
4 back to R4.2 in the packages. This will reduce
5 the cost of the energy compliance. Also, we
6 suggest to postpone the lighting efficiency
7 changes to the next energy code update, and
8 generate an incentive in 2005 to adopt these
9 suggested lighting technologies that currently are
10 not readily available, nor standard practice.
11 This is how the Energy Commission, in conjunction
12 with the building industry, introduced tight ducts
13 to the market, which is now an active compliance
14 option.

15 A couple minor comments. We've
16 mentioned that the AC maximum size is something
17 the building industry will have a very serious
18 concern over and will oppose. And also, something
19 that I share, and I don't want to speak for our
20 neighbor here in CALBO, but we want to review the
21 ACM very carefully.

22 We appreciate, Charles, all the effort
23 it takes to rewrite this document, but from the
24 building industry and the implementation of energy
25 codes, or building codes in general, there's kind

1 of a disconnect between the Energy Commission and
2 those of us who build homes and enforce codes.
3 And that is, is that the ACM is not part of the
4 building code.

5 So what we need to make sure is in the
6 standards, these changes are clearly specified,
7 and that the ACM is a clarification of what is
8 written in the standards. We've had problems with
9 that with the AB 970 process, we've had problems
10 with that with the '98 code process. We
11 appreciate the effort it takes to rewrite that,
12 and we would like to review it with some time and
13 make sure that what's in the ACM is accurately
14 reflected in the standard language, also.

15 As always, CBIA will pledge to work with
16 staff. We think they've done an excellent job on
17 these standards. Of course, we disagree over
18 cost, but we think we can come to a workable set
19 of proposed standards in the near future.

20 Thank you.

21 MR. ALCORN: Thank you, Mike.

22 COMMISSIONER PERNELL: Excuse me. I
23 have a question for Mike.

24 Mike, are you -- well, two questions.
25 One of them is, we had an initial list of costs,

1 and the one was just passed out, that's the
2 revised list?

3 MR. HODGSON: That's correct,
4 Commissioner Pernell. The initial set of costs
5 that we, that you probably have seen were costs
6 from our analysis prior to having staff and
7 consultants review. We did that review last week,
8 made modifications in those costs which reduced
9 them, and now we have a new set of costs. So
10 that's our most recent analysis that you have in
11 your hand today, Commissioner.

12 COMMISSIONER PERNELL: All right. And
13 the second one is, is the BIA's theory that
14 somehow in the affordable housing industry,
15 somehow building a less efficient home helps the
16 affordable housing constituents? Because I think
17 it increases their monthly costs. So, I mean, the
18 question is, in your opening statement you were
19 suggesting, and I may be wrong about this, which
20 is why I'm asking the question, that somehow
21 affordable housing can be less efficient and we
22 are doing the affordable housing community a great
23 service by doing that.

24 MR. HODGSON: I think the issue there,
25 Commissioner Pernell, is we do not want prices to

1 increase to not allow the entry level home buyer
2 to purchase a home. I don't think the argument is
3 we don't want to spend money cost effectively. If
4 it is a cost effective change and it encourages
5 the home buyer to purchase new housing, then we
6 would support it. But we don't want to price
7 those people out of the market.

8 COMMISSIONER PERNELL: I understand.
9 But then we also want them to be able to afford to
10 live there once they get in.

11 MR. HODGSON: That's correct.

12 COMMISSIONER PERNELL: So I think that
13 there's a balance there, and I would agree on cost
14 effectiveness, and I think we're looking at that,
15 the overall cost effectiveness of these measures.
16 But I just want to say for the record that, and
17 I've had this conversation with affordable housing
18 folks and so it's not just BIA, but, you know, we
19 want to be able to have efficient homes, well-
20 built. And I think your guys do a great job in
21 that.

22 But we also want to have homes that are
23 as efficient across the board, whether it's
24 affordable housing, temporary housing, or whatever
25 it is, so that those people that are occupying

1 those dwellings are comfortable and they can
2 afford to pay their energy bill like everybody
3 else. So that's just a general statement from me.

4 So thank you for your input, and the
5 revision of these, of the cost effectiveness.

6 MR. HODGSON: You're welcome.

7 MR. PENNINGTON: A couple of comments,
8 or comments and questions.

9 One of the things that we've been
10 focused on in this proceeding has been to look at
11 what kinds of changes would be appropriate for
12 alterations to residential buildings. And we're
13 motivated to do that not only because of the
14 potentially huge energy savings potential of
15 getting ducts sealed, for example, or getting good
16 windows installed, but another motivator was that
17 CBIA had advocated that the Commission take a hard
18 look at the opportunities related to existing
19 buildings.

20 And I know in the past that Bob Revinius
21 has been supportive of, quite supportive of the
22 alterations requirements. And am I understanding
23 a change in position related to that?

24 MR. HODGSON: No. I think we would
25 encourage the alteration requirements. In

1 addition, I think ceiling insulation may be one of
2 those that we would like to look at also.

3 MR. PENNINGTON: Okay. I just wanted to
4 be clear about that.

5 MR. HODGSON: No. And I think the
6 support through, is it AB 549, getting a study out
7 there, what could be done, is great. But I think
8 the Commission needs to be more active in the
9 immediate future to get a vehicle for the retrofit
10 market to improve. I think there needs to be an
11 encouragement for that vehicle, which I think the
12 HERS process was started six, seven years ago
13 here, on the retrofit side, needs to be pushed up
14 to a higher priority.

15 MR. PENNINGTON: Okay. The other
16 comment I would make is that there has been a
17 discussion about the previous version of the cost
18 estimates. And, you know, I think the sentiment
19 of everyone that was involved in that review was
20 that these costs are unnecessarily high. And that
21 the standards really don't drive this kind of
22 cost.

23 And, you know, there's various potential
24 issues related to that. I think Ken and Bruce
25 have some examples of some measures where the

1 costs might be high. Our intention is, as a staff
2 and consultant team, is to take a hard look at the
3 cost information that CBIA has proposed, and offer
4 an alternative view of the costs. And we're
5 starting to work on that.

6 MR. MATTINSON: Before you start, can I
7 ask are there more copies of that revised cost
8 data, because it didn't make it around here.

9 COMMISSIONER PERNELL: Can we make sure
10 that we get enough copies for everyone, please?

11 MR. WILCOX: So in the tradition of
12 helping CBIA improve their cost estimates for the
13 standards, which we intend to keep working on with
14 them, we had some comments that on, on some of the
15 issues where we think there might be improvements.
16 In particular, radiant barriers, window frames, R-
17 8 ducts, air conditioners, are areas that we see
18 where their estimates are pretty divergent from
19 what we think the numbers are.

20 Ken went to Home Depot and Lowe's over
21 the weekend, and priced some of these items on a
22 retail one off price. And, for example, you can
23 buy a sheet of roof sheeting with a radiant
24 barrier on it, and the retail cost for one sheet
25 is nine cents a square foot more than the same

1 roof sheeting without the radiant barrier. Which
2 is, you know, significantly less than the 24 cents
3 a square foot that current CBIA estimate is.

4 On window frames, the delta for going
5 from aluminum to vinyl frames is, you know,
6 ranges, depending on the exact window model,
7 sometimes it's nothing and sometimes it's a few
8 cents, and sometimes it's 87 cents, as shown for
9 this example. But we think it's a lot less than
10 the dollar and a quarter that CBIA is using for
11 that upgrade.

12 R-8 ducts, I think there's a significant
13 issue to be talked about there that we've already
14 raised, and, but our estimates based on pricing
15 from insulation industry and duct manufacturers is
16 that it should cost \$120 for this house to upgrade
17 to R-8 ducts. I think CBIA is assuming that they
18 have to actually change the structure and make
19 more space between the floors and various things
20 to, that's included in their thousand dollar price
21 for the R-8 ducts.

22 So hopefully we can clarify that what we
23 think is the fact that the R-8 ducts are not
24 required inside the conditioned space of the
25 house, which makes the whole thing a lot simpler,

1 we think.

2 COMMISSIONER PERNELL: If I could add.

3 We don't want to, I mean, I thank CBIA for coming
4 up with this, and we don't want to pick it apart.
5 But I would just say that if there's differences,
6 that we work together to figure out what those are
7 and collectively come up with a price sheet. And
8 they have been partners with us in the building
9 standards, as everyone has, so -- and anybody's
10 proposal, we don't want to pick it apart here, but
11 we want to understand the differences, meet, and
12 then rectify those collaboratively and come up
13 with a sheet that everybody can somewhat agree on
14 as accurate.

15 So, you know, as we go forward, we're
16 going to have, we're going to have a lot of
17 disagreements. And that's okay, but, you know, we
18 need a mechanism to figure out what really works
19 and what doesn't, and we want to know, from a
20 committee standpoint, how it affects California as
21 well as the industry that is supplying whatever
22 recommendations that we're recommending.

23 So as we go forward, you know, these
24 types of things are going to come up. I'm just
25 basically saying that once we identify what the

1 differences are, rather than picking it apart in
2 the committee, because we don't have the time, we
3 should meet offline and come up with those, and
4 then get that back to the committee.

5 MR. PENNINGTON: I think the costs that
6 we were going through here were just examples of
7 places where we, you know, differ, and we do
8 intend to look at this more thoroughly.

9 COMMISSIONER PERNELL: All right, that's
10 fine. Thank you.

11 MR. ALCORN: Okay. Great. I think
12 along this same line of discussion, Doug Mahone
13 has some comments.

14 MR. MAHONE: Yeah. I put a handout out
15 on the table. Many of you got it. I've got just
16 a brief set of six slides here.

17 I was concerned by some of the questions
18 that our friends at ConSol and CBIA were raising
19 about the cost effectiveness of this and the
20 affordability and how this affects the homeowner.
21 So I did what amounts to a back of the envelope
22 calculation, trying to get to the question of
23 whether these economics pencil out.

24 And, as Commissioner Pernell was just
25 pointing out, there's a whole bunch of numbers and

1 assumptions in here that we can argue about, and
2 we don't have time to do that here. So I'd like
3 to just kind of quickly walk through the logic of
4 this little exercise and, you know, then open it
5 up to questions.

6 So first, let me just talk about the
7 assumptions. My next slide. We used the same
8 1940 two-story square foot house that CBIA used in
9 their analysis. In fact, they were kind enough to
10 provide us with the Micropas input file that was
11 used for it. We calculated the heating and
12 cooling savings using the latest version of
13 Micropas, and what we did was we compared the
14 design that, using CBIA's analysis, that complied
15 with the 2001 code.

16 We updated it so it used the same
17 assumptions for framing factor, and so forth, as
18 the 2005 code is now requiring. And we ran that,
19 or we compared that to the features that, under
20 CBIA's analysis complies under the 2005 standard.
21 And we just had to pick one house, so we picked
22 the no one code version of the house.

23 We also assumed electricity costs of 15
24 cents a kilowatt hour and gas costs at 80 cents a
25 therm, as just generally fairly representative

1 costs. We also calculated lighting energy savings
2 based on the lighting baseline report that was
3 done for the Energy Commission by HMG. And for
4 the cost estimates we used CBIA's cost estimates,
5 although we made some updates to their lighting
6 cost estimates.

7 So let me just show you how this pencils
8 out. Next slide, please.

9 For heating and cooling, according to
10 the Micropas calculations the cooling savings were
11 on the order of \$1100 to \$1200 per year, depending
12 on which orientation you picked. The heating
13 savings for this case, which was Climate Zone 15,
14 were pretty negligible, five or six bucks a year.
15 And this analysis didn't assume any changes to the
16 water heating, so there were no savings there.

17 Because there's been some question over
18 the years about whether Micropas overestimates the
19 cost of energy, the amount of energy used for
20 heating and cooling, we said okay, well, let's
21 just cut it in half. Assuming real occupants that
22 turn off their air conditioners and don't have
23 them run by programmable thermostat day in and day
24 out. So we said \$550 per year heating and cooling
25 savings. And for this particular house, the CBIA

1 cost estimate to implement it was \$590 a year.

2 Okay. So for the next one, for the
3 lighting savings, there's been some back and forth
4 about how CBIA calculated the first costs and how
5 they complied. Under their scenario, they assumed
6 minimal use of high efficacy fixtures and a lot of
7 use of occupancy sensor dimmer controls. Under
8 that scenario, we estimate the energy savings for
9 lighting to be \$110 per year, and CBIA's cost
10 estimate, with some adjustments that we felt were
11 reasonable, came to \$625 a year to implement, or
12 for the first cost to implement that.

13 Incidentally, that, the intent of the
14 code was actually to use more high efficacy
15 lighting, which would more than double the
16 savings, the \$240 per year, and would somewhat
17 increase the first cost of \$700.

18 But anyway, so we then went to the
19 bottom line, how does this affect the homeowner.
20 The combined extra cost for the heating and
21 cooling savings, which was \$590, and for the CBIA
22 scenario, and a lighting of \$625, it's going to
23 cost \$1215 more for this. And so we said, okay,
24 why don't we add that to the mortgage. Typical
25 down payment on a mortgage is ten percent, so the

1 homeowner's going to have to come up with an extra
2 \$121 to buy the house.

3 That goes into the mortgage. We said
4 okay, let's assume a 15-year fixed rate mortgage
5 with a seven percent interest rate. That extra
6 \$1200 or so works out to less than \$10 per month
7 extra on the mortgage payment, or about \$120 a
8 year extra on the mortgage payment.

9 The dollar value of the energy savings
10 is \$660 per year. So the homeowner is actually
11 pocketing \$540 a year extra cash that they don't
12 have to pay out in utility bills, even accounting
13 for the increase in their mortgage.

14 If you want to look at it in a simple
15 payback, which is another way people tend to look
16 at these, it costs you a little over 1200 bucks
17 investment initially. You're saving \$660 a year,
18 so it's less than a two-year payback for this.

19 So, going to the last slide, bottom
20 line. If you assume this 1940 square foot house
21 costs \$250,000, and I'm sure the cost varies up
22 and down all over the state, but let's just pick
23 \$250,000. That's less, that's about a half a
24 percent extra cost. It's nowhere near the five
25 percent cost that Mike was talking about earlier.

1 And even if we doubled that first cost, it would
2 be one percent of the cost of the house, and it
3 would still be a good investment for the
4 homeowner. They would still be pocketing over
5 \$400 a year in extra cash flow, even if we doubled
6 the cost of all this stuff. Even if we tripled
7 it, quadrupled the cost of this, it would still be
8 a very small increment on the cost of the house,
9 and it would still be very good for the homeowner.

10 So, just two final observations. The
11 Warren-Alquist Act requires the Energy Commission
12 to adopt cost effective measures, not lowest first
13 cost measures. But actually, looking at this, I
14 have a hard time having any heartburn about the
15 first cost effects of this. And we haven't even
16 talked about the reason that PG&E and our clients
17 are in on this, which is the effects on the
18 utility grid and the overall health of the
19 California electricity system and its effects on
20 the economy.

21 So we can, we can argue back and forth
22 on all the assumptions, but, you know, even if I'm
23 off by a factor of three or four, this is still a
24 pretty darn good deal for a homeowner.

25 That's all I had to say.

1 MR. ALCORN: Thank you, Doug. Are there
2 any questions or comments about Doug's --

3 MR. HODGSON: I have a quick back of the
4 envelope comment.

5 Gary, what's the average utility bill
6 currently in the PG&E service territory? Typical
7 consumer, a homeowner.

8 MR. FERNSTROM: Well, Mike, it's
9 difficult to generalize about average, because
10 when we do that we include the roughly third of
11 California homeowners that live in small
12 apartments, as well as single-family dwelling
13 owners. I would say it's probably 500 kilowatt
14 hours a month for electricity, at about 13.8
15 cents, which is the average electric cost.

16 I don't have a calculator, but if we
17 multiply 500 --

18 MR. HODGSON: It's about 70 bucks, plus
19 water heating is about 20 bucks. So let's be
20 generous because we have a 50 percent error
21 factor, and call it \$200 a month. If we take the
22 energy savings, which Doug has so nicely generated
23 for us, at \$660 at a 50 percent discount, which
24 means in reality it should be \$1320 a year, just
25 for space conditioning. The Energy Commission

1 claims that they've reduced cost per square foot
2 in space conditioning by 70 percent since the
3 inception of the standards, so that means that
4 we've increased this by a factor of four. But
5 being generous, we'll only increase it by a factor
6 of three, which means it's about \$5,260 should be
7 the typical space conditioning bill of an average
8 homeowner who lives in an average house which was
9 built prior to the inception of the standards.

10 Now, that's only space conditioning.
11 And water heating. Reality, we also have plug
12 load and other loads. So the general estimate by
13 DOE is around 40 percent of the loads for space
14 conditioning and water heating. So when you
15 multiply 560, or \$5,260 by 40 percent, you now get
16 to a price of approximately, the average consumer
17 annual bill should be a little exceeding \$12,000,
18 on a conservative basis.

19 So, I mean, we can all talk numbers.
20 The issue is, is, you know, is this cost
21 effective, let's try to be as real as possible.
22 The pricing that CBIA did was from purchasing
23 agents bid in the month of January on features as
24 proposed by the Commission. I think we're working
25 and trying to cooperate in a general manner in

1 which pricing is sensitive and is always coming
2 down to who costs what to whom.

3 Our reality is we want clear codes, we
4 want cost effective codes. We will work to
5 achieve that answer, but I don't think we're doing
6 any good saying it's cost effective on the back of
7 the envelope. Okay.

8 MR. FERNSTROM: Well, Mike, I'd just
9 like to make one comment about the fallacy of
10 dealing with averages. Most new construction is
11 going on in the hot central valley where the
12 climate is more severe, so new homes typically, on
13 account of the climate, use more energy than the
14 average.

15 The CPUC has implemented a tiered
16 structure for baseline, where the lowest cost is
17 about 12 cents, but most single-family homes in
18 the valley use more than one times baseline, where
19 the cost for electricity can be as high as 25
20 cents a kilowatt hour if you're at five times the
21 baseline rate. And single-family homes inherently
22 use more energy on account of their size, square
23 footage, relative to small apartments.

24 So it's difficult to generalize and get
25 the right answer, when I think homeowners are

1 dealing with significantly higher utility bills
2 than you might see if you use the average.

3 MR. ALCORN: Doug.

4 MR. MAHONE: Yeah. I would say that we
5 thought about this average versus case study.
6 This is basically a case study problem. And
7 clearly, this calculation could be done for all
8 climate zones, it could be done for all the
9 measures of savings, it could be done for all the
10 costs. We didn't have time or resources to do
11 that between last Thursday, when we got the first
12 numbers, and today.

13 So this was just a quick analysis. But
14 I think what it shows is that this is cost
15 effective with large margins for error, and I'd be
16 happy to look at all kinds of other situations
17 around the state and see if we can identify
18 substantial number of cases where this kind of
19 analysis shows that it's not cost effective.

20 But I, you know, I went through this
21 just because I was having a really hard time
22 seeing how these kinds of incremental costs really
23 were going to be a problem for homeowners. I
24 think it's going to be a very, very modest change
25 in their mortgage financing, and I think it's

1 going to be a positive cash flow in almost every
2 case. So I can't really see where the damage is.

3 MR. ALCORN: Okay. Thank you, Doug.

4 Ahmed.

5 MR. AHMED: I just have a question.

6 Bill, will the entire package of the standards,
7 this draft, third draft, cost effectiveness is
8 going to be done on this?

9 MR. PENNINGTON: The cost effectiveness
10 has been done incrementally on each of the
11 measures already.

12 MR. AHMED: Right. But there's a
13 combined --

14 MR. PENNINGTON: So we're not going to
15 do the cost effectiveness of the whole.

16 MR. AHMED: Okay. Yeah, I was a little
17 concerned because the number that Doug presented,
18 like \$540 savings annually, that's almost \$50 a
19 month. And I don't know if the average bills
20 exceed, say, \$150 a month.

21 MR. MAHONE: This is a, you know, almost
22 2,000 square foot house in Climate Zone 15, which
23 is the high desert.

24 MR. AHMED: Right. Because I live in
25 the desert, and I don't think my bill pretty much

1 exceeds \$200 a month. So if you say it's \$60 of
2 that is savings, that's a very high savings, and I
3 just, I'm just trying to figure out whether that's
4 realistic or not.

5 MS. SHAPIRO: Ahmed, you have probably
6 got one of the more energy efficient houses in the
7 desert, so I don't think you're at the average.

8 (Laughter.)

9 MS. SHAPIRO: Sorry. You can't use me
10 as the average, either.

11 MR. AHMED: Well, my neighbor has \$56,
12 and he lives in a bigger home. I can't understand
13 that.

14 MR. ALCORN: Okay. All right. Anymore
15 -- Commissioner Pernel.

16 COMMISSIONER PERNELL: I'm just saying
17 if we, we can move on. I think what's happening
18 here is that we agree to meet and talk about the
19 various numbers so that we can come up with
20 something that's amenable, or at least rational to
21 all sides.

22 MR. PENNINGTON: Let me say one point,
23 actually, related to this. You asked has the
24 entirety been evaluated, or do we intend to. And
25 actually, my answer should have been yes, that's

1 what was evaluated. We assumed the federal
2 appliance standards as our base case when we
3 evaluated measures. And so, you know, those, you
4 know, the energy reductions associated with the
5 federal appliance standards were already off the
6 table, if you will, and then we evaluated the cost
7 effectiveness of the R-8 ducts.

8 So we actually have analyzed the
9 totality of what we're recommending for new
10 requirements.

11 MR. FERNSTROM: If I can make one more
12 comment about the impact of time and market
13 factors on costs. When I first got involved with
14 compact fluorescent lights 12 years ago, they were
15 over \$25. Now you can buy them easily at Home
16 Depot for \$3 or \$4, self ballasted compact
17 fluorescent lights. These standards are not due
18 to go into effect for, what, four years, five
19 years? It would seem to me by the time they do go
20 into effect, the cost of many of these measures
21 that CBIA has obtained from production builders at
22 the present, will, as a result of increased market
23 share and time, come down, so that the incremental
24 cost will be less when the standards go into
25 effect, benefitting first-time home buyers.

1 MR. AHMED: Bryan, I just have one more
2 comment. Charles gave a very good presentation
3 which gives their references of changes to the
4 last draft versus the new draft. Is it possible
5 to get that, a copy of that before we leave today?

6 MR. ELEY: I think it's being made. I
7 noticed that they did have a handout of the
8 afternoon presentation, but not the morning
9 presentation. So I think it's on its way down,
10 right?

11 MR. ALCORN: But that's in -- yeah,
12 that's actually on its way down. We're in the
13 process.

14 (Off the record discussion.)

15 MR. ALCORN: They're actually out there
16 now, so, sorry. We were a little backlogged on
17 our copying.

18 MR. MAHONE: We may have to take handout
19 breaks periodically.

20 (Laughter.)

21 MR. ALCORN: Okay. Are there anymore
22 comments on this issue? Oh, we have one person.

23 MR. GOLDSTEIN: Hi, I'm David Goldstein,
24 NRDC. A couple of comments on the issues that
25 have been raised up to now.

1 I want to start off by thanking the
2 staff and the utilities and the consultants and
3 CBIA for all the excellent information that's been
4 presented. In past Title 24 proceedings we don't
5 always have that good of a factual base to make
6 our decisions.

7 A couple of notes here. There was a
8 concern that CBIA had expressed about regulation
9 and affordability. Energy standards are a
10 particular form of regulation, and they improve
11 housing affordability under today's legal
12 infrastructure; they don't worsen it. And that's
13 because the lending system recognizes the energy
14 ratings that can be performed and will loan more
15 money for an energy efficient home than it will
16 for one that isn't efficient.

17 So as long as the home, as long as the
18 measures are cost effective, direct affordability
19 is going to be enhanced, even for those who want
20 to own their homes, as opposed to renters.

21 I'd also point out that low income are
22 the worst affected by energy price spikes, which
23 these kind of standards are designed to prevent.
24 When prices doubled in San Diego a couple of
25 summers ago, it was the low income consumers that

1 were affected the most, even if they didn't buy
2 new homes. This is reflected in the political
3 advocacy as well, and the low income organizations
4 support tighter energy efficiency standards. And,
5 in fact, some of the prominent ones are working
6 with us at NRDC and you, at the Commission, in the
7 lawsuit to reinstate the Sierra 13 standard on the
8 national level, because these groups recognize
9 that Sierra 13, even though the initial costs are
10 higher, is a better standard for the low income.

11 I wanted to point out that I thought
12 that the CBI costs are seriously overstated in
13 some cases, in two different ways. First, it's
14 very helpful, I want to thank CBIA for publishing
15 all this kind of data because it really makes it
16 easier to talk in specifics rather than
17 generalities. And it does allow us, as the
18 Commissioner pointed out, to hopefully converge on
19 where we think we're going.

20 There are two issues. One, a detail on
21 an issue raised by Bruce Wilcox, the air
22 conditioner costs. We went through this about 20
23 years ago at the Commission, where the Commission
24 was proposing a SEER 10 standard, and the industry
25 came in and said it should cost \$700, and the

1 Commission staff said no, based on DOE studies it
2 should be only \$350. And it went into effect in
3 1992, so we know how much it actually cost.

4 It actually cost zero. The price of an
5 air conditioner did not go up after the SEER
6 standard went from eight to ten, and the average
7 efficiency went from about 8.8 to 10.1 or 10.2, or
8 something, because in, apparently, in having to
9 redesign the product to meet the efficiency
10 standard, manufacturers were able to encourage
11 other improvements in efficiency in their own
12 factories. And there were also competitive
13 pressures and there was no cost increase.

14 This has happened a lot of times that
15 the Commission and DOE have set standards for
16 products. So the cost of the air conditioner that
17 Bruce Wilcox mentioned is the cost that was
18 suggested by the DOE proceeding that concluded
19 early in 2001, a \$300 incremental cost. That's to
20 the consumer after all markups, and not to the
21 builder.

22 A more recent study by Lawrence Berkeley
23 Lab suggests that it should be at least 20 percent
24 lower than that, and the analysis submitted by
25 ACEEE and, I think, the Commission, and our

1 comments supported that, said it should only be
2 half that much. And again, it may be zero.

3 So that's not to say that the ConSol
4 people, the CBIA study was getting the wrong
5 number. That may well be the cost in today's
6 market, but the point is it's not going to be the
7 cost when that's the minimum standard statewide
8 and, hopefully, nationally.

9 We also agree with Heschong Mahone's
10 comments on the lighting costs being lower than
11 CBIA suggested.

12 But the key area where we would dispute
13 the \$2,000 number that CBIA came up with is that
14 it's based on an assumption, based on a what-if.
15 What if builders don't want to use verifications.
16 Well, there are a lot of what-ifs. What if
17 builders don't want to use fiberglass insulation
18 and want to go to rigid foam outside the studs.
19 That's going to cost more, too. What if the
20 builder has a crummy purchasing agent. That's
21 going to raise the cost. There are a lot of ways
22 to do things that aren't the lowest cost method.

23 That doesn't mean we should predict
24 it'll happen. The verifications are available
25 statewide even now, and are becoming more and more

1 available by the month, if you look at the pattern
2 of ratings and its growth over the past six
3 months.

4 And if you simply assume that builders
5 will use third party verification, then going
6 through the CBIA table, I'm looking at numbers
7 like 600 as being more typical, rather than the
8 2,000. So the real reason that the costs would be
9 in the thousands, not hundreds, is only that the
10 builder chooses to not do third party
11 verifications. And there's really no reason that
12 that has to be done. There's no reason that that
13 should be the cost basis if it's standard. A
14 builder could choose to do that.

15 On the other hand, a builder could find
16 that there's a fire sale at suppliers of certain
17 building supplies and get the cost cheaper. The
18 builder could find that his subdivision allows
19 good orientation so that all the houses face
20 south, and gets the credit for that and doesn't
21 have to comply worst case orientation.

22 The builder could find that his partners
23 at the National Association of Homebuilders have
24 got a \$2,000 tax credit through the Congress,
25 which provides all of the additional incremental

1 costs. I will note that CBIA is not supporting
2 that excessive level of tax credit, but despite
3 their and our opposition it still may happen.

4 Final note. On a lot of the questions
5 relating to the standard, we really need to go to
6 the experience that there are markets potentially
7 available to supply the components and the
8 services that are being required or suggested as
9 compliance options. And if the standards are
10 passed, the equipment and services will be there.
11 We saw this with improved frames for windows in
12 the 1990s Title 24 proceeding. We saw this with
13 tight ducts in the past couple of years, and we're
14 seeing more of it.

15 We saw it with utility programs to
16 promote compact fluorescents, because that's the
17 reason that Gary's great price history on compact
18 fluorescents was correct. When verifications
19 become even more important to compliance at a
20 reasonable cost, you'll see more of them, and
21 you'll see them more available throughout the
22 state.

23 When SEER 13 is the minimum national
24 standard, you're going to see lots of 14s and 15s
25 available at reasonable cost. When compact

1 fluorescent lighting in recessed cans is the
2 preferred compliance option, you're going to see
3 that throughout the state. And the Lithonia
4 representative has a letter that essentially says
5 that.

6 The more advanced industries are
7 building business plans, as well as equipment,
8 based on the market opportunities that are opened
9 up by tight standards. And it's in the interest
10 of the state to support that kind of business plan
11 being successful in order to encourage businesses
12 to make investments in supplying greater
13 efficiency to Californians over the next several
14 years.

15 Thank you very much.

16 COMMISSIONER PERNELL: Thank you, Mr.
17 Goldstein.

18 MR. ALCORN: Thank you, David. Are there
19 any comments in response to Mr. Goldstein?

20 Okay.

21 MR. FERNSTROM: Bryan, we've been
22 talking a lot about cost effectiveness. Is this
23 the correct time to bring up small technical
24 issues with Charles' presentation?

25

1 (Laughter.)

2 MR. ALCORN: As long as they're small
3 enough.

4 MR. FERNSTROM: Okay. The small
5 technical issue I'd like to bring up is I thought
6 Charles' slide showed that high efficacy fixtures
7 would be required residentially for lamps 18 watts
8 and over. And I believe the standard actually
9 says, or you said, I believe you said over 18
10 watts. And the standard --

11 MR. ELEY: Well, over 18 watts you have
12 to have an electronic ballast.

13 MR. FERNSTROM: I believe the standard
14 says 18 watts and over. So that is small.

15 MR. ELEY: Okay.

16 (Laughter.)

17 MR. ALCORN: Okay. Noted.

18 MR. ELEY: Noted, yes.

19 MR. ALCORN: Thank you, Gary.

20 Okay. I think we're ready to move on to
21 the next commenter. Tom Trimberger.

22 MR. TRIMBERGER: Good morning. Tom
23 Trimberger, representing California Building
24 Officials.

25 At every workshop, without fail, I've

1 said the same thing. And it, I'd like to say that
2 my comments have been appreciated and accepted,
3 and run with.

4 MR. ALCORN: They have been appreciated.

5 MR. TRIMBERGER: The fact is I've been
6 talking about conflicts with the Health and Safety
7 Code since the very beginning of this. We've been
8 looking originally at winter replacements, Health
9 and Safety Code, looking at housing affordability,
10 and repairability requires that residential
11 construction you can build it back, you can repair
12 it, you can build it back the way it was.

13 I've gone through this time and time
14 again. I've encouraged at the very beginning --
15 okay, actually, let me go somewhere else first.

16 So that's been referring to window
17 replacements. Now we're looking at additional
18 requirement where we cannot do that for furnace
19 replacements. You replace a furnace, AC, you're
20 now required to do duct sealing requirements.
21 Both of these really fly in the face of what
22 housing and community development is doing. I
23 urged the Commission to meet with housing and
24 community development. You did. Would not allow
25 me to join the participation, which is fine. And

1 you left, agreeing to disagree.

2 They have been, you know, I talked to
3 you guys, talked to them, and they are as
4 staunchly opposed to this as they ever were, and
5 say it's not going to happen. And you're saying
6 oh, it's going to happen, our attorneys don't
7 think it's a problem.

8 Bob Raymer, through CBIA, and myself,
9 through CALBO, tried to arrange meetings with
10 housing and community development and CEC to sit
11 down and try to work this through in the
12 development stage. Like I said, we're trying to
13 help get a standards written. We've had
14 unwillingness to meet. CEC and ACEEE say no, we
15 can't argue in public. We can't disagree in
16 public.

17 That doesn't help me. Doesn't help me
18 at all. The only remedy I have, you know, I'd
19 like to talk about it every time. I haven't had
20 an ability to get a meeting to resolve this. Just
21 to wait for the standards to get printed, then go
22 to the Attorney General for an opinion. Go to the
23 bigger attorneys.

24 COMMISSIONER PERNELL: I think we have
25 some other remedies. Let me understand what your

1 concern is. And that is, that our proposed regs
2 will conflict with the Health and Safety Code
3 of --

4 MR. TRIMBERGER: That is correct.

5 COMMISSIONER PERNELL: And how is that?
6 Let's use windows, for an example.

7 MR. TRIMBERGER: Because the Health and
8 Safety Code says that you can build it back the
9 way that it was. You don't have to upgrade it to
10 dual pane, you don't have to look at a window
11 frame type, you know. You've got, you know, a
12 single pane here and you've got to put a new, you
13 can't put back the same window. You can repair
14 it, you can't replace it the same. Is what you
15 guys are telling me now.

16 Now, with a furnace replacement, you
17 can't just replace the furnace and update it to a
18 more efficient furnace through the market, but now
19 you've got to go to all the ductwork and replace
20 or seal ductwork.

21 COMMISSIONER PERNELL: I guess my
22 question is, is that somehow making the facility
23 less safe?

24 MR. TRIMBERGER: No, it's a matter of
25 affordability through Health and Safety Code and

1 housing and community development. It's their
2 law, it's not my law. It's not, it's not a
3 building standards requirement. It's your
4 requirement. It applies to residential
5 construction only.

6 COMMISSIONER PERNELL: Well, it only
7 requires to residential or affordable housing
8 construction.

9 MR. TRIMBERGER: No, all residential
10 construction.

11 COMMISSIONER PERNELL: So what HCD is
12 saying, and I'm asking you this because of your
13 initial comments, and it sounds like you're kind
14 of caught in between and I don't want that to
15 happen, so help me understand this for a minute.

16 HCD requirement says that if you have a
17 1950 house and something happens, you've got to
18 replace the same window that was in it originally.

19 MR. TRIMBERGER: It says you don't have
20 to. It says you are able to. But you, that no
21 one can put a law that says you have to upgrade
22 it.

23 COMMISSIONER PERNELL: Okay. So they
24 are saying that we can't mandate anybody to put
25 anything other than what was in there originally.

1 MR. TRIMBERGER: Correct, that you can
2 rebuild it the way it was.

3 COMMISSIONER PERNELL: Okay.

4 MR. TRIMBERGER: Like I said, I've
5 talked about this, and then, you know, now we've
6 got the duct sealing requirement. With new
7 construction it's a lot easier, cleaner inspection
8 for us. We're out there multiple times, we're
9 communicating with the builder. If you've got a
10 HERS rater that's got to schedule inspections,
11 they're all grouped in one area. There's no one
12 living in the house, they can get in to do it.
13 If you try to do that, we have no trouble
14 scheduling with a homeowner and a contractor for
15 us to get into a house, once.

16 Typically, a furnace replacement, it's a
17 miscellaneous permit. It's one inspection.
18 There's, you know, if there's corrections, then we
19 come back. But it's not a relationship. We,
20 we've got an ability to work with the people.
21 It's a difficult inspection. We don't have any
22 hook. If, you know, it's not like we have an
23 occupancy that we can allow occupancy or not.
24 They're already in there. If we write corrections
25 they can walk away. It's up to CSLB and the

1 contractor to keep after that.

2 Again, you've got a homeowner and not a
3 superintendent, and frequently they come back to
4 us and say gee, my guy never came and did their
5 corrections. I say yeah, you're right, we still
6 have the corrections on the book. And they say
7 well, what should I do. And I say, don't pay
8 them. They say well, we already have. It's
9 relying on a homeowner to manage a construction
10 process, and now it's being complicated with a
11 third party.

12 There are, you know, we're looking at
13 drawing lines between repairs and replacements.
14 It's a little difficult. I think we'll have more
15 incentive to not give permits.

16 The smoke test that is an option is kind
17 of unworkable, even systems that pass the six
18 percent test have visible smoke leak. So, you
19 know, I don't see how the 60 percent reduction in
20 the visible smoke leak is a viable option.

21 The cost estimates, PG&E says \$150 per
22 ton. Seems quite low to me. The rates I've heard
23 is, you know, \$1200 a system. That's more like
24 \$400 per ton. Then we're looking at only \$30 for
25 a one and five sampling. Again, you know, you've

1 got a more complicated sampling procedure if the
2 guy's running all over town, rather than to one
3 commercial development.

4 So I see a lot of problems with
5 enforceability. I'm disappointed by the recent
6 add to add duct testing. I recognize that there
7 are substantial savings to be had. I don't know
8 that they need to be through the permit process,
9 in requiring something from the building officials
10 that you can't enforce.

11 And, again, like I said, I'm
12 disappointed by the unwillingness to resolve
13 conflicts with housing and community development.

14 COMMISSIONER PERNELL: Let me just say
15 that in terms of HCD, we think we will get you out
16 of the middle of that conflict and by the time
17 these regulations go into effect have an
18 understanding that we think that your folks can go
19 forward in the field and do your job. We are,
20 we're not here trying to complicate anybody's
21 either regulations or ability to do their job.

22 But this, this is an issue that has made
23 its way to the forefront, and I can tell you that
24 it will be discussed, and there will be a
25 resolution.

1 So, I mean, I appreciate you bringing
2 this back up again, and we will take care of this.

3 MR. TRIMBERGER: Do you, I'm pleased to
4 find that there will be a resolution. Is there a
5 mechanism or anything --

6 (Parties speaking simultaneously.)

7 COMMISSIONER PERNELL: -- exactly what
8 it is, but --

9 (Laughter.)

10 MR. TRIMBERGER: Like I said, I need a
11 resolution. I don't want to be caught between --

12 COMMISSIONER PERNELL: Right. And --

13 MR. TRIMBERGER: -- conflicting state
14 requirements. You know, it's going to hurt
15 enforceability even if I, you know, with all good
16 intent. How, is there any idea when or how this
17 resolution could come?

18 COMMISSIONER PERNELL: Well, I mean,
19 obviously there have to be a series of meetings.
20 We have to institute that, and be the lead or the
21 aggressor on solving this issue.

22 One thing that confuses not only
23 stakeholders but the general public is when you've
24 got a conflict in regulations. And so we've got
25 to fix that, whether -- and I'm saying there is

1 going to be a resolution. I don't know what that
2 is, but I do know that conflict and resolution of
3 our regulations don't help anybody. Doesn't help
4 those that enforce them, doesn't help those that
5 rely on them, and it certainly doesn't help those
6 that are advocating those.

7 So, you know, that's a fix that needs to
8 happen.

9 MR. TRIMBERGER: Thank you.

10 MR. PENNINGTON: I have a couple of
11 comments related to your technical points.

12 You mentioned \$1200 per system as a cost
13 that you've heard. And I actually saw a recent
14 thing from SMUD, a bill stuffer from SMUD, that
15 was saying that -- and I've talked to the program
16 manager there, and that program includes
17 significantly more than duct sealing by itself.
18 It involves a room by room air flow check. Where
19 there's some problem with it, it involves a
20 correction of the existing duct system.

21 So there's a whole bunch of costs, my
22 understanding, that average out to \$1200. And
23 that service goes way beyond just doing duct
24 sealing. So I don't think that's comparable.
25 It's unfortunate that it sort of got characterized

1 that way.

2 MR. TRIMBERGER: Yeah. SMUD and others
3 are all, the ones I've contacted have all been
4 similar. The room by room air flow, that's a
5 pretty quick measurement.

6 MR. PENNINGTON: Well, there is a
7 correction here. That's what I'm getting at, Tom.
8 They often find problems, and so they install
9 jumper ducts, or whatever they do, that all gets
10 rolled into this cost.

11 MR. TRIMBERGER: Doesn't that cost have
12 to be put into here?

13 MR. PENNINGTON: No.

14 MR. TRIMBERGER: Well, somebody's got to
15 pay for it.

16 MR. PENNINGTON: They're not part of
17 duct sealing. Those are other things --

18 MR. TRIMBERGER: Yes. Correct, but now
19 you're saying that it's magically going to happen.
20 Either the contractor's going to have to fix it,
21 or the test, or whoever, somebody has to fix it.
22 It doesn't happen for free.

23 MR. PENNINGTON: Well, you're
24 misunderstanding.

25 MR. MODERA: I think I can shed some

1 light on this.

2 MR. PENNINGTON: Yeah. Mark, Mark
3 Modera's got a comment, real quick.

4 MR. MODERA: Okay. I'm the fellow who
5 got the cost numbers.

6 COMMISSIONER PERNELL: Wait, you need to
7 state your name for the record, please.

8 MR. MODERA: My name is Mark Modera.
9 And where the cost numbers came from, the two key
10 points here, and one point is the cost that you're
11 seeing, this \$1200 promoted for the new -- that
12 bill stuffer by SMUD, it used to say \$800 to
13 \$1200. And I called SMUD also to ask them well,
14 why did they do that. And they said well, the
15 contractors basically, if the customer sees \$800
16 to \$1200, they assume it's always \$800. And that
17 was sort of the -- if there were things to be done
18 in the house over and above, they felt like they
19 couldn't, they were unable to sell it.

20 But the fundamental thing that's worth
21 noting here is that this is done as a stand-alone,
22 this is stand-alone duct sealing. What stand-
23 alone duct sealing means is someone goes out to
24 the house, does a diagnostic, spends an hour and a
25 half or two hours out there, and one out of two

1 times winds up selling the diagnostic, maybe one
2 out of three times, selling a duct sealing.

3 And then they have to send a crew out
4 especially to do duct sealing. That cost is much
5 higher than the cost associated with I'm already
6 there to replace the air conditioner, and we're
7 just going to seal the ducts while we're there.

8 And what, I talked to some of the
9 contractors who were doing that on a regular
10 basis, where they make the duct sealing a part of
11 their bid, and the costs are actually
12 significantly lower than what we quote. The
13 number for residential, I believe it comes out to
14 be six or \$700, is what we put in for the cost.
15 Which came from stand-alone duct sealing from
16 utility programs.

17 So if anything, I think we're on the
18 high side as what the actual incremental cost is
19 going to be to a consumer at the time of equipment
20 replacement, not in a stand-alone situation.

21 MR. TRIMBERGER: Okay. Now, that's what
22 I'm trying to cover, and thank you for maybe --
23 maybe you're clarifying that \$600 number that
24 you're figuring. You say I put it into the costs
25 so you can, you're not just looking at the \$150

1 per ton and the \$30 in --

2 MR. MODERA: The \$150 per ton is in
3 commercial. The residential was taken from the
4 utility -- there wasn't a lot of data in
5 commercial on sort of lots and lots of utility
6 studies on the cost of duct sealing, whereas in
7 residential there was. In the residential there
8 were, there's something called a DEER study, where
9 they went around and analyzed all of the costs for
10 duct sealing. And that came from, you know,
11 thousands of houses, what it actually cost the
12 consumers to do it.

13 MR. TRIMBERGER: So, and maybe this is
14 where Bill was going, and maybe I had this wrong.
15 The, you know, whether it's the SMUD or the tester
16 person, or whoever, or whether it's the installing
17 contractor, somebody has to pay to get that system
18 repaired, to go in and look for leaks and seal
19 them.

20 MR. MODERA: But that's what the \$600
21 represents. That --

22 MR. TRIMBERGER: That, okay, that
23 \$600 --

24 MR. MODERA: -- that cost -- yes.

25 MR. TRIMBERGER: Okay. Is that 600 per

1 system, is that what we're looking at?

2 MR. MODERA: Per system. Yeah. That
3 was, that was the average that came out of their
4 study. And what it was was an analysis of the
5 utility programs, like PG&E had a program for a
6 long time, as did a gas company, I believe, also.
7 And I believe SCE did, also. And that's where
8 those numbers came from.

9 MR. TRIMBERGER: Okay.

10 MR. PENNINGTON: Another couple of
11 things, in terms of practicality of this. We've
12 said before that we're quite interested in trying
13 to prop up the building departments' role in this
14 by getting information out. The utilities are
15 very anxious to accomplish this energy savings and
16 are willing to sponsor training for contractors
17 and, you know, get that done extensively; willing
18 to provide information to customers about the
19 benefits of doing this. The Energy Commission is
20 quite interested in getting the word out that
21 there's value to the existing home customer.

22 We're also interested in looking at, if
23 we have problems with this, you know, if there are
24 situations where contractors are shining this on
25 in a way that building officials have difficulty

1 dealing with, we're interested in working with the
2 Contractors State License Board to try to follow
3 up on examples like that, and to try to make it
4 clear to contractors that they have an obligation.

5 MR. TRIMBERGER: Yeah. I don't think
6 it's going to be difficult for contractors to
7 understand that they have an obligation, or for
8 building officials to know what is written in the
9 code. But still, getting that is going to be
10 difficult.

11 CSLB, they're, you know, we're required
12 to look at -- to make sure a contractor's license
13 is valid before we issue a permit to them. Well,
14 their Website is now 12 weeks out of date, and
15 just updating people's records on whether or not
16 they paid their worker's comp and whether or not
17 their license is renewed. I, I don't, I would not
18 expect a strong enforcement arm from them on this.
19 But I'd certainly be willing to work with them.

20 MR. PENNINGTON: Okay. Thank you, Tom.

21 Anymore comments, reactions? Ahmed.

22 MR. AHMED: I had a comment on the
23 tables, 151B and C charts. I think these --

24 MS. SHAPIRO: Ahmed, are you in the
25 standards or the ACM?

1 MR. AHMED: Oh, in the standards.

2 MS. SHAPIRO: Okay.

3 MR. AHMED: It looks like these tables,
4 Charles, I'm trying to understand this, has
5 replaced their old climate zone-wise tables;
6 right?

7 MR. ELEY: That's correct.

8 MR. AHMED: And what I was trying to
9 understand is, under domestic water heating type,
10 under 151B, there is a note, seven I think, that
11 limits the use of electric resistance heat. But
12 on the next table, for Package D, that note is not
13 there. It says you can put in any type of water
14 heater.

15 I was trying to understand this. What
16 is the difference between these two tables? You
17 can take them all and explain --

18 COMMISSIONER PERNELL: They're on page
19 149?

20 MR. ALCORN: These are the existing
21 Package D and Package C. Package C is the base
22 standard. Package C is a special package created
23 for all electric homes. And so that's why there's
24 a difference in the note.

25 MR. AHMED: So Package D is an all

1 electric?

2 MR. ELEY: No, Package C.

3 MR. AHMED: Okay.

4 MR. ELEY: Is the all electric package.

5 MR. AHMED: And Package D is?

6 MR. ELEY: Package D is basically gas

7 heating and water heating.

8 MR. AHMED: Okay, but it doesn't seem to
9 say that on this under domestic water heating,
10 does it? It just says any water heating system.

11 MR. ELEY: Yeah. Well, it -- yeah, you,
12 I guess you could use Package C and put in a gas
13 water heater if you want. But you're allowed to
14 use electric.

15 MR. AHMED: Right, under certain
16 conditions. I'm looking on Package D.

17 MR. PENNINGTON: There's much more
18 stringent requirements in Package C than there in
19 Package D. Take into account that it's an all
20 electric house. So if you want to comply with
21 your gas with Package C, you could pay the extra
22 money to comply with that, if you want to.

23 MR. AHMED: Right. No, I understand
24 that. What Package D, let's, it says -- I'm still
25 a little confused. Sorry about that. Package D

1 says system must meet budget, and it says, any, on
2 page 151.

3 MS. SHAPIRO: So Ahmed, are you going to
4 use an electric water heater? Is that --

5 MR. AHMED: No, I'm just trying to
6 understand the tables.

7 MS. SHAPIRO: Okay.

8 MR. NITTLER: My opinion would be -- Ken
9 Nittler. The "any" means that any system you can
10 find that meets the budget would be acceptable in
11 Package D. And then the way the footnote works,
12 Footnote 7 that's referenced in Package C, is
13 pretty explicit, saying electric resistance only
14 applies to Package C.

15 MR. ELEY: You probably also need to
16 look at Chapter 3 of the residential ACM, on --
17 let's see, that would be on -- because what that
18 says is that if you use the performance approach
19 you're always comparing yourself to a 50 gallon
20 gas water heater.

21 MS. SHAPIRO: Well, you know what?

22 MR. ELEY: And that's the budget.

23 MS. SHAPIRO: Charles, if we have to
24 like hunt around and go to the ACM manual and we
25 can't figure this out, I -- "any" sounds too broad.

1 Maybe we need another footnote that says --

2 MR. PENNINGTON: We're not --

3 MS. SHAPIRO: -- says that the --

4 MR. PENNINGTON: We're not changing this
5 in the standards. This is --

6 MS. SHAPIRO: Well, the list is
7 confusing to somebody if it says Package D isn't
8 used in domestic water heaters.

9 MR. PENNINGTON: We have whole pages in
10 the Energy Manual that explain the packages. So,
11 I don't know. I, you know, trying to focus --

12 COMMISSIONER PERNELL: Ahmed, are you
13 suggesting that there need to be a clarification?

14 MR. AHMED: No, I'm not suggesting
15 anything. I was trying, just trying to understand
16 this, Commissioner.

17 COMMISSIONER PERNELL: Well, it --

18 MR. AHMED: It says "any", and I was
19 trying to figure out "any" means, does it mean a,
20 you know, electric water heater, gas water heater,
21 solar water heater; what does this "any" mean.
22 That's what I was trying to understand.

23 MR. ELEY: I think there's an
24 opportunity for clarification here.

25 MR. AHMED: Okay.

1 COMMISSIONER PERNELL: But more than
2 ten, I understand, is in 98.9 percent of the
3 people in the state can't, so if there's a
4 clarification needed, we want to look at that.

5 MR. AHMED: Okay. Thank you.

6 MR. ALCORN: Okay. Thanks, Ahmed.

7 Bill Mattinson, do you have some
8 comments?

9 MR. MATTINSON: Yeah. I, I just have a
10 couple of copies of what I thought the
11 Commissioner's -- I have some comments, I e-mailed
12 too late to get on the table.

13 And I'm concerned -- this is regarding
14 changes in the residential ACM in the residential
15 compliance methodology, related to glazing area.

16 Currently, a number of climate zones are
17 allowed a total of 16 percent glass to floor area.
18 Others might even be like 20 percent. That's been
19 the practice for quite some time. Under the
20 proposed standards, all climate zones are raised
21 to 20 percent for whatever reasons, I think
22 primarily because the builders felt that that was
23 more what was being built, and more faithfully
24 reflected the market.

25 I know that initially, and at the

1 November workshop, Kevin suggested that allowing
2 more glass area does not result in energy savings,
3 and I believe NRDC and some of the utilities, PG&E
4 and perhaps others, agreed with that.

5 But leaving that aside, as to whether it
6 should or shouldn't be raised to a larger glass
7 area, my concern is that the offsetting savings
8 that are suggested by the staff and consultants
9 for that extra energy use are being made up
10 somewhat on the backs of smaller, more affordable
11 homes. And so my concern as evidenced, and a
12 number of other people here, and it is also having
13 to do with affordable homes and what we're doing
14 about the standards.

15 Under current practice, when a design
16 came in with 12 or 13 or 14 percent glass, and
17 they were compared in the computer compliance
18 method against a standard house that had 16 or
19 perhaps 20 percent glass, if they used less glass
20 they essentially obtained a credit against the
21 unused glass area that perhaps offset the need for
22 additional conservation measures.

23 I believe that that makes sense. Smart
24 designers know that using more glass in a house
25 causes more energy use, and that wise fenestration

1 choices can lead to lower energy costs and energy
2 use.

3 I've had a lot of experience with
4 affordable housing projects, both as a consultant
5 for non-profit agencies that develop them, and as
6 a plan reviewer for PG&E's Energy Star Homes
7 program both for single-family and multi-family
8 homes. And I've seen that many of these projects
9 are designed with less than the maximum package
10 glazing area.

11 But, in particular, some of my clients
12 in Sonoma County built the majority of the
13 affordable housing, both multi-family rental units
14 and for single-family dwellings, most of them for
15 their projects, have actually been held to a
16 higher standard than Title 24 when it comes to
17 energy, because their funding comes from a number
18 of different sources. It's not just market
19 funding. And they're competing for the funding,
20 one against another, with the various agencies
21 that provide them.

22 And one of the recent benchmarks over
23 the last few years that those funding agencies
24 have adopted is that, as you may or may not know,
25 the funding agency ranks your project, gives them

1 certain points for certain features that have to
2 do with a lot of societal issues. One of them is
3 energy, and you get additional points if you beat
4 Title 24 by 15 percent. So you use 15 percent
5 less energy than allowed by Title 24.

6 Our client, one of them, Burbank Housing
7 Development Corporation in Sonoma County and North
8 Bay, has felt that they cannot go to the table
9 without a guarantee that they're going to get
10 those points. If they don't get those points for
11 being 15 percent better than Title 24, they will
12 not qualify for the funding and their project will
13 die.

14 So over the last few years, we have made
15 sure, and worked with them diligently, to ensure
16 that their projects show 15 percent better saving.
17 And again and again we've come back to the
18 solution that works for them most cost effectively
19 is to use the best possible windows they can get,
20 typically high performance vinyl with low solar
21 heat gain, low E glass, and to limit the
22 fenestration area to that which is needed for
23 comfort, health and safety and general sales, or
24 appeal.

25 That's been their design decision. It

1 wasn't, they didn't cut their glass area down to a
2 ridiculous level in order to build the cheapest
3 possible house. Their goal is not to build the
4 cheapest possible house. Their goal has been to
5 build affordable, cost effective housing that
6 engenders pride in community, pride of ownership.
7 It makes it a nice place to live. This does not
8 mean dark, dreary, underlit homes.

9 As an example, one of the projects I
10 worked on last year, the Carrillo Apartments, 14
11 buildings of various sizes, several different unit
12 types, was, this particular building I looked at
13 yesterday was built with 12.7 percent glass area,
14 less than the 16 percent allowed in that climate
15 zone, and by using high performance windows and
16 that glazing area, and all the other prescriptive
17 features, with the exception of ducts, which
18 requires inspections and additional cost, they
19 didn't feel like it -- especially in multi-family.
20 They came in at better than 16 percent under the
21 Title 24 standard.

22 So in an attempt to understand what
23 would happen under the proposed allowance, and my
24 objection here with the proposed allowance is that
25 under the rules, if they come in with 12 percent

1 glass, they're going to be compared to a standard
2 house that only has 12 percent rather than the
3 current 16 percent prescriptive allotment that
4 could be used, so they will not get that credit.

5 And in order to check that, I just pro
6 rated their glazing area up to 16 percent so that
7 there would be no credit on that. And they lost
8 two and a half to three percent of their
9 compliance margin, which bumped them down to 13
10 percent better than Title 24, which is still a
11 darn good house but throws them out of the funding
12 arena.

13 I've spoken with the director of the
14 Burbank Housing Development Corporation, who said
15 he absolutely has to get those points to get
16 funded.

17 Now, I know we could go for additional
18 conservation measures that cost money, but it made
19 the most sense to them and to me that a
20 conservation measure that saves money is even more
21 -- reducing window, is even more valuable than
22 having devices or inspections to try and make up
23 for that.

24 So, by the way, and I've spoken with
25 Bill Pennington about this briefly last week, they

1 are not taking credit for central water heaters.
2 They've all got individual water heaters. And I
3 think that reducing that, or eliminating that
4 loophole is one of the biggest benefits that we'll
5 get out of the standard with multi-family, where
6 you can't get away with anything and your water
7 heaters are being converted.

8 I'm concerned that using wise
9 fenestration design is going to be taken out of
10 the tool kit that a designer can use to achieve
11 compliance and beyond, and that these are
12 excellent places to live. If I'd had time, and
13 some of these I would have brought slides and
14 bored you with how beautiful they are.

15 But this is something that we need and
16 this is something that's serving a terribly under-
17 served segment of our population, and unless there
18 are other means to achieve these ends, I don't
19 know what we're going to do about it.

20 So I would suggest that there are some
21 alternatives and maybe some compromises. Perhaps
22 the proposed glazing setting the standard equal to
23 the proposed could kick in only at very low
24 levels, say ten percent, or something, way beyond
25 what would be used in reasonable projects like

1 this.

2 I didn't go through and check every
3 project I've seen, but they've been 12, 13, 14
4 percent, for a reason, not just to make them
5 cheap. So I'm concerned about that, my clients
6 are concerned about it, and I think others may be
7 concerned, too.

8 COMMISSIONER PERNELL: Do you have some,
9 or can you get us some written recommendations
10 that would help your clients in that area?

11 MR. MATTINSON: I can. In fact, I tried
12 to meet with them. The director and the design
13 director have been out of town for a couple of
14 days. I spoke to them last night. I can get you
15 some suggestions.

16 MR. PENNINGTON: So let me see if I
17 understand. At the end you were starting to make
18 a suggestion. So my understanding is that you
19 appreciate the potential savings of having the
20 glazing area go down with the actual, so that
21 you're not getting sort of a free rider credit for
22 homes that have naturally less glazing area, but
23 that you think at some point that should stop,
24 that that approach should stop. And below that
25 point, you should give a credit. You said ten

1 percent.

2 MR. MATTINSON: Actually, I meant it the
3 other way around. First off, I object to the term
4 free ridership. I mean, good design is good
5 design, and energy conservation is energy
6 conservation. My clients are using restrictive
7 fenestration as a design tool to achieve
8 comfortable energy efficient, cost effective
9 homes. I don't consider that to be a free
10 ridership.

11 Free ridership is the builder throws up
12 the cheapest possible rental housing with eight or
13 nine percent glass and it will meet the code, and
14 strip all the energy features out and let it
15 decline, let the renters pay for it over time. I
16 think there's a difference there.

17 My suggestion, and it's half-baked --
18 not even half-baked, it's about to go in the oven,
19 I guess -- I think that good design and healthy
20 energy conserving design includes houses 12 or 13
21 percent, 14 percent glass, and they should be
22 given a credit against its allowance. It's when
23 you get way down around ten percent or less where
24 you'd be getting a huge credit, perhaps for
25 building a crummy building, that it should kick in

1 and -- and compare them to something with less
2 than the prescriptive package. Again, that's not
3 a reasonable proposal to put on the table yet, and
4 fully formed.

5 MR. WILCOX: Bill, I'd just like to
6 point out what, a couple things. One is I think
7 that if this change in the standards happens, it's
8 really going to change the environment for
9 projects like you're talking about, and I think
10 that the criteria that the funding agencies use is
11 going to end up getting changed because it's a
12 different situation at that point.

13 And so --

14 MR. MATTINSON: That could be, but it
15 also happens to be the Energy Star standard, which
16 has taken years for us to get that there, and I
17 suspect --

18 MR. WILCOX: Okay. So the other way to
19 look at this is that you got this project where
20 the builder is not sealing the ducts, which we all
21 think is a cost effective thing, it will save
22 money for these low income people over the years.
23 We're going to be requiring it because it's a good
24 thing to do, we're going to require it in old
25 houses when people replace their furnaces. And

1 these guys don't have to do it and they still
2 claim they're 15 percent better than the standard.

3 MR. MATTINSON: They're not claiming it,
4 Bruce. They are.

5 MR. WILCOX: Right.

6 MR. MATTINSON: They are.

7 MR. WILCOX: And, but they can be 15
8 percent better than the standard and not even put
9 in the basic cost effective measures. That's why
10 I think that is --

11 MR. MATTINSON: Isn't it more cost
12 effective to take out costs by reducing windows,
13 and then add other features. I mean, we own the
14 biggest --

15 (Parties speaking simultaneously.)

16 MR. WILCOX: It's still cost effective
17 to seal those --

18 MR. MATTINSON: I mean, we know that the
19 biggest contributor to the load is the windows.
20 And they're addressing that directly. Now --

21 MR. WILCOX: It's still cost effective to
22 seal those ducts.

23 MR. MATTINSON: We have to -- we don't
24 have procedure for duct testing in multi-family.
25 So how can I suggest that?

1 MR. ELEY: There was, I guess there was
2 one comment I would maybe take exception with,
3 which was good fenestration design equals
4 restrictive fenestration. I think good
5 fenestration design has a lot more to do with
6 orientation and shading of the windows than it
7 does with the total area.

8 The fundamental basis for this
9 requirement, though, was to deal with the wide
10 variety of homes that we're faced with in
11 California, everything from multi-family, for
12 instance, that where the average is maybe 12
13 percent or so, all the way up to, you know, some
14 custom homes that have windows well in excess of
15 20 percent.

16 So we have a wide range of situations
17 here. The one that -- you brought another one to
18 the table, which is the affordable housing. You
19 can get credit under the standard for good design.
20 You get credit for good orientation of the
21 windows, for shading the windows. But you don't
22 get credit for just reducing area, because, you
23 know, in my opinion, you know, I don't know what
24 the right area is, you know. There is no right
25 area.

1 We came to this realization in the early
2 nineties with non-res buildings, because there,
3 you know, it ranges everything from Home Depot,
4 that has perhaps four percent windows, to an
5 office tower that has 40 percent windows. So we
6 made it a free variable so that window area itself
7 is really not a factor. And I think it's worked
8 really well. It's enabled the prescriptive
9 approach to be more widely used, and it's made the
10 prescriptive approach a viable and flexible
11 procedure. And we're hoping to do the same thing
12 here.

13 But one of the strong arguments is to,
14 for this approach, is it's one of the, it's one of
15 two key things it's beginning to deal with, with
16 multi-family, the other one being water heating.

17 MR. MATTINSON: Well, in response, and
18 I'll try to be brief, I mean, I think comparing
19 non-residential to residential is like the stand-
20 alones. You know, they're not even close to being
21 the same thing. So we shouldn't try to impose the
22 same rules just to be consistent.

23 You were a consultant, I believe, way
24 back before the beginning of these proceedings,
25 and along with myself and several others,

1 suggested that we should separate multi-family out
2 from single-family, because they are so different,
3 and capture the requirements for multi-family
4 separately than single-family. And trying to
5 encompass, you know, the complete range of housing
6 is daunting, and I appreciate that.

7 But I think part of why this came up,
8 and part of why this taking away of the credit has
9 occurred, is because somebody wanted more glass
10 and that was the original argument that you guys
11 presented, was that this was an offsetting savings
12 to allow the rest of the people, whoever they are,
13 production builders, whatever, to go to 20
14 percent. And I just don't really feel good about
15 that.

16 MR. PENNINGTON: That was not the
17 motivation.

18 MR. MATTINSON: That was on those charts
19 that were shown, anyway, the giving it away here
20 and taking it back there.

21 MR. PENNINGTON: Well, we analyzed the
22 statewide impact of this change. That's true.
23 But, you know, the underlying rationale for the
24 sliding scale for glazing area is that, you know,
25 typically, your glazing area is not an energy

1 conservation decision. You know, and --

2 MR. MATTINSON: Only in --

3 MR. PENNINGTON: -- and we heard, we
4 heard comments from the building industry that
5 that was true, as well. But, you know, typically
6 the energy consultant doesn't get a set of plans
7 for the building and then says, oh, well, by the
8 way, one of the ways you can comply is you can
9 take out all the windows on this facade. You
10 know, or even reduce it significantly. That's
11 really not in the agenda, if you will, of the
12 builder. The builder has a plan and has a set of
13 plans that they're trying to accomplish, and so
14 now they have to meet the standards of compliance
15 requirements.

16 So if the builder shows up, or if the
17 plans show up to the energy consultant with 14
18 percent glass, then why should what has been
19 demonstrated to be cost effective for the other
20 features to be taken out of that building because
21 of the coincidence that the builder has decided
22 they want 14 percent glass in that building. That
23 doesn't make sense.

24 MR. MATTINSON: Well, I think everything
25 you said may apply to production builders, but I

1 know that Burbank and other self-help, low income
2 subsidized housing, we're meeting as the energy
3 consultant with them before they've got a design
4 team. We're meeting with the directors of the
5 program, we're giving them advice, we're helping
6 them to seek solutions, and the glazing area is a
7 design element. It may not be in a low cost for
8 profit subdivision, but I think it is here.

9 They're also incorporating, as Charles
10 said, overhang shading devices, orientation where
11 possible. When you've 14 apartment buildings on
12 the -- it's hard to get good sun exposure, but
13 they're doing the best they can to get high
14 density housing that is livable.

15 So I don't want to --

16 MR. PENNINGTON: It sounds like --

17 MR. MATTINSON: -- I don't want to
18 throw, you know, a bomb in front of the train
19 here. I just want to make a voice heard that
20 matters to me, a concern of the community that
21 matters to me, and seeking help. And I, it's not
22 like this is new. I brought this up in November,
23 too.

24 MR. ALCORN: Okay. Lynn Benningfield.

25 MS. BENNINGFIELD: Yes. I'm Lynn

1 Benningfield, and I'm with Heschong Mahone Group,
2 and we're consultants to PG&E. But right now I'd
3 like to speak as a CABEC member.

4 I think a key point is to ask the
5 question how many exterior walls are there. Are
6 the projects you're talking about, Bill, stand-
7 alone affordable housing, or are they attached,
8 are they apartments?

9 MR. MATTINSON: They're both.

10 MS. BENNINGFIELD: Okay, because I think
11 that is a unique point of distinction. Where you
12 have four exterior walls on which to place glass,
13 then it is more likely to become a free ride, or
14 whatever you'd like to call it. There is only so
15 much wall available. But in a case where they're
16 stand-alone, or maybe attached where there's only
17 one common wall, there is more exterior wall
18 available to put that glass, and then there should
19 be a credit.

20 I do support what Bill's saying, there
21 should be a credit for, say, 14, 15 percent glass
22 because that home does use less energy than a 20
23 percent glass home. And it is a real credit at
24 that point. And I don't think that -- I think the
25 free ride comes when you only have two walls and

1 you maximize the glass in the wall, and that just
2 happens to end up at 12 and you get a large credit
3 for that.

4 So I think maybe if you put a limit on,
5 or a distinction between attached homes and multi-
6 family and stand-alone, that might be the
7 solution.

8 MR. ALCORN: Thank you, Lynn.

9 Okay. I'd like to move along probably
10 at a little bit quicker pace. We have about seven
11 more commenters, and we have 15 minutes. So the
12 next commenter, if I could -- and I apologize for
13 the pronunciation of the last name -- Charlie
14 Macher.

15 MR. MACHER: Macher.

16 MR. ALCORN: Macher. Sorry.

17 MR. MACHER: Charlie Macher, with
18 Blomberg Window Systems.

19 A couple of points to make. Basically,
20 we're opposed to the change in the U-factor tables
21 in the prescriptive packages, based on the NFRC
22 new procedures. Windows can be good for any
23 number of reasons, and energy is just one of them.
24 The aluminum industry I think would tend to suffer
25 from these changes, and the aluminum industry is

1 currently only approximately ten percent of the
2 market in California.

3 If that can't happen, then there are
4 some other things that need to happen, and that is
5 based on the new NFRC procedures, I think that the
6 default tables should be adjusted to reflect those
7 changes. There are perhaps changes in the U-
8 values on the default tables, and also changes in
9 solar heat gain packages.

10 And on a side comment, there are a lot
11 of appliances included in the building of a house.
12 I heard reference this morning to IC candlelight
13 fixtures. That should be airtight. And in
14 airtight at two cubic feet per minute at 75
15 pascals, and a window is airtight at three-tenths
16 of a cubic feet per minute. That's 75 pascals.

17 Those are my comments. Thank you.

18 MR. ALCORN: Thank you, Charlie.

19 Okay. Can we hear from Martyn Dodd.

20 MR. DODD: Thanks. Martyn Dodd, here.

21 Okay, I wanted to talk about thermal zoning in the
22 ACM Manual for residential.

23 We currently have rules and regulations
24 in the non-residential ACM Manual that requires
25 that buildings be properly thermally zoned so that

1 we get an accurate accounting of energy usage in
2 the building. We don't have those rules in the
3 residential manual. I was going to bring this up
4 on the 2001 standards, but I didn't really have
5 any opportunity because it wasn't on the table to
6 do these sort of changes.

7 However, I think it's time we took a
8 look at this issue. If I give you an example of a
9 zoning issue that will drive my point home, why we
10 need to have these rules, let's say that I have a
11 multi-family building and the building, say, faces
12 50 percent of the units north, 50 percent of the
13 units south. Okay. So we take that building, and
14 let's take a day like today.

15 Okay, so that building, let's say, 1:00
16 o'clock in the afternoon. We have heat gain
17 coming through the south side of the building.
18 Okay, let's say it produces, oh, 6,000 Btus.
19 Okay. We go around to the north side of the
20 building, it's cold out, we've got a heating load
21 that produces heating load, say, 2,000 Btus.

22 Okay. So if we take a look at the total
23 energy usage on the building it's going to be
24 about 8,000 Btus, 6,000 for cooling, 2,000 for
25 heating. Okay. So if we take the current

1 modeling procedures, the current modeling
2 procedures have us take and model that as a single
3 thermal zone. Okay. So we have 6,000 coming in,
4 2,000 coming out; net, 4,000. Twenty percent.
5 The cooling load offsets the heating load.

6 Now, to make it worse, we've got TDV
7 coming into play. This is going to occur
8 typically between about 10:00 and 6:00 on a
9 building. So between 10:00 and 6:00, we're going
10 to have solar gains, and we're going to have high
11 TDV numbers. So what this is going to amplify is
12 the fact that we've got TDV numbers that might be
13 as high as three, possibly in the range of ten.
14 So suddenly we've got a 50 percent discrepancy, or
15 100 percent discrepancy multiplied by a TDV
16 number, and we end up with an extremely large
17 discrepancy in that model.

18 So I would suggest we adopt the thermal
19 zoning rules.

20 COMMISSIONER PERNELL: You would suggest
21 what? I'm sorry, I --

22 MR. DODD: I would suggest that we
23 require, as in the non-residential manual, that
24 any analysis that's done on residential buildings
25 that have multiple HVAC systems, that we would

1 require that they be broken out into individual
2 thermal zones. So this would be a simple adoption
3 of the thermal zoning rules out of the non-
4 residential manual. In fact, it would be very
5 easy to put it in to the joint appendices so it
6 applies to both manuals.

7 But it also requires that we're going to
8 have to adopt a different modeling procedure for
9 the baseline standard builder, because we can't
10 just come along and on a standard building create
11 this huge thermal zone.

12 Okay. So did the technical aspects of
13 that make it through to everybody? We have this
14 problem in non-residential, we developed all the
15 zoning rules for non-residential for this reason.

16 MR. ALCORN: Okay.

17 Thank you, Martyn. Any questions for
18 Martyn?

19 Okay. Thank you very much.

20 Okay, Charles Cottrell.

21 MR. COTTRELL: Thank you. Charles
22 Cottrell, representing NAIMA.

23 I have a couple issues I'd like to
24 address here. First, I'd like to thank staff and
25 consultants for all the work they've done with our

1 group and the other industry groups on trying to
2 iron out some issues with the residential
3 insulation inspection criteria.

4 There still remains one issue that NAIMA
5 has a concern about, and the way the most recent
6 draft, which was talked about as late as
7 yesterday, addresses the settled density or the
8 final R-value of insulation in attics is that
9 mineral fiber insulation is required to have a
10 density check, or, you know, take a plug of it,
11 lay it, and also meet a minimum thickness which
12 is, that is quite acceptable to us.

13 But the problem is that with regard to
14 cellulose insulation -- and for anybody who's not
15 aware, we, I represent the mineral fiber, or
16 fiberglass and rock and slide rule industry, so
17 those are competitors and I don't want to
18 misrepresent our industry, or our association --
19 with regard to cellulose products, what is
20 required is that a thickness measurement is taken
21 at a certain time. And the problem with that
22 approach is, if you'd allow me I'll run through
23 just a real quick example of that.

24 Right now, what it says is if the, the
25 cellulose is required to be put in at a installed

1 density, and then because it settles rather --
2 somewhat quickly, then there is a settled density
3 minimum that it's required to meet.

4 So the way it reads right now is instead
5 of doing a density check, which is somewhat
6 problematic, I will admit, it only needs to meet a
7 certain thickness at a certain time. And if you
8 look at trying to install, let's say, an R-36, and
9 just for simplification of the math, what I was
10 doing is assuming an R of three per inch. So an
11 R-36 would be you'd be trying to install a target
12 of 12 inches of material.

13 Those materials, the dry ones, can
14 settle as much as 20 percent, and that is on the
15 high end, granted that, but it could be in the ten
16 percent range is more normal. But given a 20
17 percent settling rate, you could install 13.6
18 inches, it would, after approximately one week it
19 settled 60 percent of that, so you would be down
20 from 13.6 settled 1.6 inches, and be at your 12
21 inch installed target.

22 Now, that still leaves another about 40
23 percent, and these are all, again, just averages,
24 but I'm using numbers that were quoted from the
25 cellulose industry. So you would still have

1 another 1.1 inches to possibly settle over the
2 coming year or so it takes for those materials to
3 finally settle.

4 So that is one of the problems with what
5 is currently in the standard that says if
6 insulation has been in place for seven days or
7 longer, the manufacturer's minimum required
8 settled thickness or greater shall be in place.
9 So you could, like I say, I'd be happy to sit down
10 and go through the details, but you could still
11 settle another 1.1 inches, according to my
12 calculations.

13 The other thing is that these, this
14 approach is significantly different than what is
15 taken by the rest of the insulation industry. We
16 participate in the ASTM process, as does the
17 cellulose manufacturers. And ASTM C1015 requires
18 that both density and thickness tests are required
19 to meet, to assure the R-value. I've submitted
20 those in detail, I won't bore you with reading
21 that.

22 But also, the Insulation Contractors of
23 America, ICAA, they also have similar requirements
24 for testing both density and thickness for both
25 types of products. And we feel that deviating

1 from the industry standards is not appropriate,
2 and further, to sort of make up a sort of process
3 that's a little more practical in the field is not
4 appropriate, and especially this one that's on the
5 table right now, which would not assure that the
6 R-value is given to the customer.

7 And, just as a final statement, that is
8 what this, you know, insulation protocol is about,
9 is assuring that absolutely in the end, that the
10 R-value is delivered and it is not a, I'd remind
11 everyone that it's not a requirement that every
12 job be done this way. It's only to give extra
13 credit for those superior installations and making
14 it as easier as practical that that be done, I
15 don't think is, should be the paramount issue
16 here. It should be that it be done correctly, and
17 whatever needs to be done to do that I'd encourage
18 the CEC to pursue that path.

19 So that's it on the --

20 COMMISSIONER PERNELL: We have a
21 question from the podium. Commissioner Rosenfeld.

22 COMMISSIONER ROSENFELD: I'm not quite
23 clear. What I guess I heard you say was that
24 after a week you're still going to get another 40
25 percent of the settling going on, and therefore

1 that instead of requiring 12 inches, one should
2 require, I don't know, 13 or whatever you said.
3 So are you just asking for a larger thickness?
4 I'm not quite sure what your remedy is.

5 MR. DODD: My remedy is that the -- both
6 materials have a density test done and the
7 thickness taken. And that will assure that both
8 products have the delivered R-value. You can get
9 -- thickness can equal -- or, I'm sorry.
10 Thickness can assure R-value if it's at a
11 sufficiently long time with the cellulose
12 products, but it would take really, as I
13 understand it, I'm not an expert on those
14 products, but I think the number was it settles
15 the final 40 percent over a year.

16 So at, you know, out at a year, and I
17 realize that that's not practical that you would
18 take the final thickness at that point, but we're
19 trying to pick a point in space that isn't
20 necessarily, you know, going to give you an
21 assured R-value for a thickness. And if you do it
22 after one week, my point was that in worst case
23 conditions, those materials can still settle
24 another 40 percent.

25 So the way it reads right now is that

1 you will hit the target installed density after a
2 week, but then if there's still 40 percent
3 settling left over the year, you could get another
4 significant amount.

5 COMMISSIONER ROSENFELD: But what does a
6 density test consist of?

7 MR. DODD: Taking a plug of the material
8 and weighing it. A known, a known volume which
9 is --

10 COMMISSIONER ROSENFELD: Before it was
11 even installed.

12 MR. DODD: No, no. After it's
13 installed, which is what is required. Yeah, you
14 take a core sample, which is what is required with
15 the mineral fiber products. I do want to clarify
16 that the issue with some of the cellulose
17 products, not the dry ones, but especially the
18 ones that are installed with water, is that over
19 time those materials are -- you would need to have
20 a dry sample to get a true density of that
21 material. And that seems to be one of the big
22 concerns, is that, well, we install a lot of those
23 products with water, so it's not practical to do
24 that.

25 And my point is, practical or not, it's

1 the correct way and it's what the industry and
2 industry experts have advocated in these other
3 standards.

4 COMMISSIONER ROSENFELD: Thanks.

5 MR. ALCORN: Okay. Thank you, Charles.

6 MR. COTTRELL: I'm sorry, I did have
7 just one other item I would like to address, and
8 this is not of, let's say, whichever way the CEC
9 chooses to go on this, I'm fine with. But I have
10 submitted some comments to the buried duct issue,
11 and I was approached a couple of years ago by the
12 Department of Energy looking to promote this
13 practice within our industry, and to get it out.
14 I circulated the document that showed what it was,
15 basically was a system where you put in some
16 cardboard baffles around ducts and tried to pile
17 insulation up and above the ducts, and around
18 them.

19 Circulated that to our member companies,
20 and got back a couple of comments from our
21 engineers, who said that, you know, they have
22 seen, just coincidentally, buried ducts in attics,
23 and moisture problems associated with that.
24 Because if you do have a cold duct in an attic,
25 and no -- well, there's a vapor retardant usually

1 associated with the duct, or always, either a flex
2 duct or a duct board, or something like that.
3 Then, or even if you just plan a plain steel duct,
4 that would be the vapor retarder, essentially.
5 And that in a, in proper or improper climate
6 conditions in that attic, hot waste attics, you
7 could have condensation problems. And -- not
8 could have, but they have seen condensation
9 problems associated with those, staining on
10 drywall, ceilings, that sort of thing that showed
11 up.

12 So I would just very much caution the
13 CEC and all interested parties to take a close
14 look at that, because as the condensation forms on
15 those ducts, or on the outermost vapor retarder,
16 the K-value of those materials increases, or the
17 K-value increases and it just becomes a vicious
18 cycle where you would get more condensation and
19 could really end up with a real mess, in certain
20 worst cases.

21 So I'd just like to, you know, say that
22 we really need to take a close look at that. And
23 in my review of the Department of Energy's
24 documents supporting that practice, there was just
25 a very cursory mention of that issue. And I think

1 a statement something to the effect of we don't,
2 we don't think that would be an issue, or don't
3 believe it would be. And I don't think that
4 that's sufficient to encourage a statewide
5 implementation of that practice.

6 And again I'd like to point out that,
7 you know, it could benefit our industry by, you
8 know, putting more insulation on top of ducts.

9 Thank you.

10 MR. ALCORN: Thank you, Charles.

11 We're over on our time a little bit, so
12 I'm going to ask the next case speaker to be
13 direct, if they would.

14 Dave Ware, do you have some related
15 comments?

16 MR. WARE: I have some. Dave Ware, with
17 Owens Corning. I have some very direct and
18 related comments.

19 MR. ALCORN: Okay. To insulation, I
20 guess.

21 MR. WARE: The first comment I have goes
22 back to what Ahmed had mentioned, and I had marked
23 it and I don't know why I didn't bring it up then,
24 and I apologize for that.

25 He had talked about, in the mandatory --

1 prescriptive packages, pages 149 through 151, I
2 just want to note that there is not a Footnote 8.
3 It's an editorial thing. So a prior footnote had
4 gotten struck out related to the HSPF.

5 So, okay. The first comment that I have
6 relates to the continued complexity of the
7 standards, and the continued allowable trading
8 that these standards promulgate.

9 Throughout this workshop process and
10 early on, I made comments about the fact that
11 there are a number of various things, such as the
12 water heating energy factor and the R-8 duct, or
13 R-4.2 ducts, gets traded down, and things of that
14 sort. And what's happened in these standards,
15 you've -- in the Commission's zeal to improve the
16 accuracy of things as well as possibly provide
17 more flexibility, sometimes under the guise of
18 providing and requiring third party verification
19 of those savings, the standards, in effect, are
20 getting way complex and are getting extremely
21 costly, exactly the point that Mike Hodgson raised
22 on behalf of CBIA.

23 Early on in the standard process I had
24 argued and submitted letters to the Commission to
25 put restrictions on the water heating efficiency

1 using a 6.0 EF, or higher, so that we would not
2 allow trading off. We have now hourly models
3 being proposed in the ACM for water heating. It
4 even makes it easier for trading things back and
5 forth and not getting the kinds of real features
6 that provide long-term savings.

7 And I believe that's still the
8 Commission's goals and objectives. Yet the
9 standards are getting extremely complex.

10 The, Charles Eley and other consultants
11 working on behalf of the Commission clearly showed
12 the cost effectiveness of R-8 ducts. R-8 ducts in
13 the non-residential standards is being proposed as
14 the mandatory level, yet they are not being
15 proposed likewise as a minimum mandatory level in
16 residential buildings. I applaud the fact that
17 they have that energy impact as part of the
18 standard budget, but the fact that there are so
19 many allowable trade-offs really means that the
20 only effective R-value that will be used for ducts
21 will most likely continue to remain the 4.2, even
22 though Charles Eley's report clearly showed the
23 cost effectiveness of those, with some minor
24 modifications in a couple of climate zones.

25 Then we have the related proposal in the

1 same tone for buried ducts. Now we have a late
2 proposal on the table that implies, maybe somewhat
3 justifiably, that there's some energy benefit
4 associated with burying ducts under the ceiling
5 insulation. That only gets into more trade-offs
6 and adds to more cost to the overall inspection
7 process to, ultimately to the consumers, because
8 of the verification that's needed to provide that.
9 And I'll talk some more about buried ducts.

10 So I would really implore the Commission
11 to take a quick look, re-look at what's being
12 proposed on the table, and really maybe make a
13 check list of what they think is really going to
14 be viable and what kind of measures are actually
15 going to be used by builders, because I don't see
16 any major change happening with these standards.
17 We'll end up seeing many of these features traded
18 away.

19 Some specific comments I have relate to
20 the ACM Manual, Section RQ, the insulation
21 procedures. I participated with staff and some of
22 their consultants on the site visit that was made
23 in Sacramento to kind of test out the third party
24 protocol, and it was clearly evident that there
25 were some needed changes to that procedure. What

1 staff did was to take out all the measurement
2 requirements. And they justified that, basically
3 saying that they did not need that for the
4 cellulose systems, that they felt that the
5 installation of cellulose systems were fairly
6 appropriate and the level of density that would be
7 used would be fairly standard and there would not
8 be any problems.

9 I've submitted a critique of the
10 technical information that CIMA had provided, and
11 I applaud CIMA for providing that information, but
12 I have yet to see anything from staff or the
13 consultants in regards to my critique of that.
14 And basically, my critique said based upon CIMA's
15 own information that there is more than sufficient
16 information provided in those, in that
17 documentation to imply that there is a lot of room
18 for error in the installation of cellulose
19 systems. My critique was not to throw rocks, but
20 to continue the advocacy for equal-handed
21 measurements for all systems that are installed
22 that come under the high quality insulation
23 proposed energy credit. That's all it was. And
24 unfortunately, we don't have, in the latest draft,
25 those kinds of checks and balances.

1 Both Charles and I have advocated for
2 density measurements in walls, as well in
3 ceilings. That is the only way you're going to
4 ensure that the quality of the installation meets
5 the intended objectives of this procedure.

6 I submitted comments over the weekend
7 based upon Friday's call that the working group on
8 the procedures had, where I had included some
9 specific criteria and definitions for what we have
10 been calling a touch test, and I don't see those
11 in this draft, and so I don't know whether those
12 procedures were accepted or rejected. So I would
13 like some comment on that.

14 MR. PENNINGTON: We told you that we
15 couldn't do that in one day turnaround, and you
16 agreed that was unreasonable. So I don't know why
17 you're bringing it up.

18 MR. WARE: Well, I'm bringing it up to
19 find out whether at least you're looking at them,
20 and --

21 MR. PENNINGTON: Of course we're looking
22 at it, David.

23 MR. WARE: Okay. All right, that's all
24 I ask.

25 And I assume too, Bill, that this group

1 is still going to be meeting on the procedures.

2 Okay. That's all I'm asking for.

3 Lastly, I guess, regarding the buried
4 ducts. I'm not in favor of using this procedure.
5 I've already mentioned that it is extremely
6 complex. This isn't about the indirect inference
7 that more ceiling insulation might be added. What
8 we will end up doing is creating another
9 opportunity for gamesmanship in the field, and I
10 feel that possibly with some reworking of the
11 procedure here, and simplifying it by 50 percent,
12 it might be more workable.

13 But right now you have four
14 classifications of buried ducts. What do you do
15 with sloped ceilings, for instance. Low slope
16 ceilings. I mean, there's a lot of scissor
17 trusses in buildings, but the procedure doesn't
18 address that, and, in fact, the ACM installation
19 procedures for high quality installation materials
20 doesn't even address the situation in the ceiling
21 section of low slope ceilings. So the inference
22 is, for instance, that you cannot take the high
23 quality insulation energy credit either in the
24 entire building, when you have low slope ceilings,
25 or in that section of the house that has a low

1 slope ceiling. Something needs to be decided, or
2 at least defined.

3 Likewise for buried ducts, I think that
4 that issue on low slope ceilings is not even
5 addressed, and we all know that whether it's a
6 cellulose loose fill material or a glass fiber
7 loose fill material, there are certainly
8 restrictions regarding the slope and the
9 characteristics of the performance of a product in
10 those kinds of situations. And now you're going
11 to compound that by burying the duct. So all
12 these things need to be addressed.

13 As an example, I sit on the Tech
14 Committee for MASCO's EFL program. We looked at
15 the same proposal from Stephen Winters Associates.
16 In that program, we collectively decided, the
17 committee decided to use some very simplified
18 criteria to allow the procedure to be used. And
19 I'd be happy to share that with the Commission.
20 It gets away from all this modeling. There still
21 needs to be third party verification, and it
22 allows for recognition of, indeed, buried ducts,
23 but it addresses many of the kinds of issues that
24 I have just mentioned.

25 So those are my comments. Thank you.

1 MR. ALCORN: Okay, thank you.

2 Michael Day.

3 MR. DAY: I'll try to be as fast as
4 possible.

5 First off, I want to make a couple of
6 comments with regards to the, to Mr. Cotrell and
7 Mr. Ware.

8 With regards to Charles' comments about
9 buried duct problems with hot, wet conditions in
10 the attics. One thing that we're lucky in in
11 California is that we don't have too many hot, wet
12 conditions. That was something that the Stephen
13 Winters group had looked at. It is a
14 consideration if you are in Atlanta. It's not so
15 much of a consideration if you're in Alturas.

16 The second instance there is that by
17 mandating that the duct systems be at least R-4.2,
18 the surface temperature will very rarely get below
19 the dewpoint within the attic. So, again, due to
20 our relatively hot, dry conditions throughout the
21 majority of the state where this would be, where
22 this would advocated, and the fact that we're
23 using insulated duct, a lot of those surface
24 condensation issues are negated.

25 With regard to Mr. Ware, one of the best

1 things that the Title 24 whole program has done is
2 allowed the marketplace to decide what's
3 effective. And you can call that trading against,
4 or gamesmanship, or whatever, but when you get
5 down to whether it's a source energy or a TDV,
6 you're talking about how many Btus per square foot
7 per year, and what's the most cost effective way
8 to get that.

9 If it's not cost effective, builders
10 won't take it, for the most part, because that
11 makes their house too expensive. Or maybe they
12 do, because it gives an added benefit in terms of
13 comfort, or some other salable factor.

14 But in terms of trading, that's the
15 basis of what we have here, what's become a very
16 good system in terms of allowing the best
17 technologies to come forward, allowing the best
18 ideas to come forward, and finding those that work
19 best in the marketplace.

20 I apologize. My name is Michael Day,
21 I'm with Rockwood Consulting, and I'm here today
22 representing Beutler.

23 Another point regarding R-8 on the
24 ducts. The concerns that Doug Mahone or Charles
25 Eley were bringing up, I believe, regarding some

1 of the costs, I believe that there are some people
2 looking at some of those costs. \$119 probably is
3 a good cost for the materials to the mechanical
4 contractor. To that needs to be added labor; tax
5 on the material; overhead and profit for the
6 mechanical contractor; overhead and profit for the
7 builder; their transportation costs. As an
8 example, in an R-8, a box of R-8 duct, you get 25
9 feet in a standard box. In the same box you can
10 get 50 feet of R-4.2.

11 Some studies that we did indicated that
12 there was a substantial increase in the amount of
13 transportation costs. Something that Mr.
14 Goldstein probably wouldn't like to hear about it,
15 is that we saw it adding tens of thousands of tons
16 of emissions per year just in the extra
17 transportation of R-8 duct, because there's twice
18 as much volume moving the stuff around.

19 So there are some unintended
20 consequences around that issue. And we look
21 forward to participating in finding the true cost,
22 or at least the true range of costs that this
23 could indicate.

24 One question that we had with the
25 system, or with the energy manual, was a reduction

1 of the design, indoor design temperature from 78
2 to 75 degrees. I was wondering if anybody had any
3 idea why we were going from 78 to 75.

4 MR. WILCOX: That's because it's based
5 on the ASHRAE procedure, which uses 75, and there
6 isn't a procedure for 78.

7 MR. DAY: Okay. Well, that pretty much
8 takes care of that one.

9 The reason we brought that up was that
10 there's been a good push that we've been in favor
11 of, towards right sizing, towards coming up for
12 something on that, and that by lowering the indoor
13 design temperature you're going to be increasing
14 the capacity.

15 This is sort of arguing against
16 Beutler's interest to a certain extent. We'd like
17 to see a little bit of extra capacity in there,
18 but realistically, you're sort of giving with one
19 hand and taking away with the other, was the
20 feeling on that.

21 The other point about it is, is that it
22 can cause, in terms of implementation, problems
23 out in the field. For example, the Del Webb
24 project out in Roseville has been underway for
25 three and a half years so far. Now, all of a

1 sudden, on a certain date, houses on one side of
2 the street are going to be designed with 78 degree
3 indoor design temperature and designed to meet
4 that, and across the street they're going to be
5 designed to meet 75 degrees indoor design
6 temperature.

7 I don't know if any consideration has
8 been given towards grandfathering existing master
9 plan communities, because there are constantly
10 questions on the part of homebuyers, saying what
11 is my system supposed to do. And it would be very
12 difficult in existing communities to say, well,
13 yours was built on December 15th so it's only
14 supposed to maintain 78, and yours was built on
15 January 6, and it was supposed to maintain 75.
16 That's a big consideration there.

17 Another question had to do with pipe
18 insulation. We saw that below 55 degrees there
19 were requirements. Is this, is it the expectation
20 of the Commission that this will apply to all
21 vapor return lines for condenser based systems?

22 MR. PENNINGTON: That's been the
23 standard for quite some time.

24 MR. DAY: There are -- well, the reason
25 I'm asking is that there are a lot of, with

1 oversizing of coils there are quite a few
2 combinations now where the vapor return is over 55
3 in almost all conditions. And even when it's not,
4 you're dealing with a significantly lower outdoor
5 temperature, so that the differential in
6 temperature between outdoor and conditions within
7 the vapor line are staying about the same.
8 They're tracking as the outdoor conditions go
9 down, as you move away from design conditions.

10 So if the requirement is for all vapor
11 lines to be taken to this standard, that's fine.
12 We'd like to see that and the cost analysis on
13 that. But if it's for 55 degrees, I'm using 55
14 degrees as a benchmark irrespective of whether
15 it's a chill water system or whether it's a vapor
16 return line, we wanted to bring up and have
17 recognized by the Commission that there are
18 combinations and they are becoming much more
19 commonplace that have a vapor return temperature
20 significantly in excess of 55 degrees.

21 The next note was on the removal of air
22 flow verification for systems that did not have
23 TXVs. If the refrigerant charge has -- if the
24 refrigerant procedures are used and charge
25 verification, then the air flow is not required.

1 But if a thermostatic expansion valve is placed
2 in, then the air flow requirements remain.

3 In a sense, we think it's kind of
4 backwards. Refrigerant charge, if the system is
5 not being properly maintained and having the
6 refrigerant checked, even though it's supposed to
7 be a closed system there can be leakage over time.
8 What you're dealing with there are air flow at a
9 snapshot in time, and you're dealing with the
10 refrigerant charge at a snapshot in time. Whereas
11 a TXV, being a dynamic system, has the ability to
12 operate and compensate for changes in refrigerant
13 or air flow over time.

14 In essence, if there was going to be one
15 that was going to be removed, taking away from TXV
16 might be more appropriate.

17 MR. WILCOX: Michael, I don't think we
18 removed it. We certainly didn't intend to make a
19 change like that, so we should talk about how
20 you're interpreting the language, because that's
21 not the intent.

22 MR. DAY: Okay. The next item had to do
23 also with buried ducts, and this was just a real
24 quick thank you to Mr. Pennington, Mr. Leber, Mr.
25 Alcorn, the other members of the staff. We had to

1 jump through a lot of hoops trying to put that to
2 you guys. You didn't leave any stone unturned so
3 far as we were concerned. It was, we thought it
4 was pretty exhaustive, but it was fair. And thank
5 you for taking a look at something that could help
6 at fairly low cost.

7 The next question was regards to, was
8 just sort of a comment, in general concept. With
9 regards to the installation of insulation quality,
10 and the values that we're giving to standard and
11 increased or improved. Again, it seems to be,
12 with regards to the right sizing initiative,
13 giving with one hand and taking away with the
14 other. We're trying to clamp down, and rightly
15 so, on oversizing, yet providing an oversizing, an
16 excuse for oversizing on the other hand. And the
17 two seem to be working against each other.

18 The last, or the next to last item, was
19 that in the ACM the tankless and hydronic
20 combination, or the combination hydro, does not
21 recognize tankless water heaters, or instantaneous
22 water heaters. It recognizes storage, some other
23 forms, and electric. It does not recognize the
24 instantaneous.

25 There are quite a few new tankless water

1 heaters coming on the market that have no standby
2 losses, and that are being actively looked at for
3 inclusion in combination DX cool hydronic heat,
4 and we'd like to see the tankless added to the
5 combination.

6 MR. ELEY: Well, it's not an intent to
7 take that out. It certainly, those are rated with
8 an energy factor, just like a NECA storage water
9 heater. And there's credit now. I'll look into
10 it, but it's certainly not intended to --

11 MR. DAY: It was just a little language
12 change that on the combination hydro, it listed
13 the other ones and this one was noticeable by its
14 absence.

15 MR. PENNINGTON: So this was in the res
16 ACM?

17 MR. DAY: Yes, it is.

18 MR. PENNINGTON: Do you know what
19 section we're talking about?

20 MR. DAY: I have it printed, but I don't
21 have the, I don't have the --

22 MR. PENNINGTON: All right. That's
23 fine.

24 MR. DAY: -- page. I can get that to
25 you.

1 MR. NITTLER: You know, I think a
2 related question there is on some of the tankless.
3 I think there's some sort of issue about the
4 publishing of the energy factor in the Commission
5 databases. I don't think that number is there in
6 the databases, even though many of the equipment
7 are specified with energy factors.

8 MR. ALCORN: We'll look at that.

9 MR. DAY: And the last issue is, again,
10 a general comment. There's been a lot of concern
11 about the health and safety issues surrounding
12 indoor air quality. In the ACM, Section 2. -- or,
13 excuse me, wrong section. Section 2.2.13, talking
14 about infiltration and ventilation, we start
15 dealing with the fact that below a certain, below
16 1.5 SLA we could have backdraft issues. It talks
17 about the assumption that at the beginning of an
18 hour, whenever the room is stuffy, people will
19 open the windows.

20 And some of the underlying assumptions
21 that we've always made about the leakiness of
22 houses in California, about the actions of
23 homebuyers, and it just doesn't seem, in our
24 experience -- or in Beutler's experience, since
25 I'm no longer part of Beutler -- it hasn't been

1 part of Beutler's experience that people really do
2 get up at 11:00 o'clock at night if the house is
3 too stuffy and open their window for five minutes
4 to get the absolutely perfect amount of air.

5 What we end up with is three items, and
6 these are my last. Either, A, they leave the
7 windows open for longer than is necessary for
8 ventilation, at which point there's an energy
9 penalty. We've got too much fresh air coming in,
10 or there's an energy side that's not seen. The
11 other side, they leave the windows closed, either
12 for security considerations or convenience, and
13 there is a health side to this where proper
14 ventilation is not occurring.

15 And in all of this, what we would like
16 to see is, is that as builders start to address
17 true ventilation issues by bringing in heat
18 recovery ventilators and other devices that can
19 provide ventilation and they're willing to spend
20 the extra money in order to get the energy
21 benefits of wise and good choices with that, that
22 there be some method of recognizing the
23 performance of the air to air heat exchangers, as
24 well as the cost of the fans, and oftentimes, the
25 bathroom exhaust fans that they're replacing in

1 the, either in the ACM or the Energy Manual
2 overall.

3 Thank you very much.

4 MR. ALCORN: Thank you, Michael.

5 I see that Gary Fernstrom is not at his
6 seat, so we'll save his comments for later.

7 Finally, Jess Chapman, do you have
8 comments?

9 MR. CHAPMAN: No, I listened to nothing
10 that I think that my addressing would help
11 anyone's interest.

12 MR. ALCORN: Okay, terrific. Jeff has
13 no comments. Thank you.

14 Let's go ahead and break for lunch, and
15 meet back at 2:00 o'clock, one hour from now.

16 COMMISSIONER PERNELL: Brian, before we
17 do that, the Committee is going to be concerned
18 about the buried ducts, and so everybody that has
19 information on that, please get it to us.
20 Specifically, how do you fix them if they're
21 leaking, sliding or pitched ceilings, and -- low
22 slope ceilings, and the safety factor. If a
23 homeowner decides to climb up there, do they know
24 what rafters to step on.

25 So buried ducts is going to be something

1 that this Committee is interested in, so please
2 get your information to us.

3 Thank you. We'll reconvene at 1:30 --

4 MR. ALCORN: Actually, at 2:00.

5 COMMISSIONER PERNELL: Fine.

6 (Thereupon, the lunch break
7 was taken.)

1 COMMISSIONER PERNELL: We're about to
2 begin.

3 All right. I will turn the proceedings
4 back over to Mr. Alcorn.

5 MR. ALCORN: Okay. Thank you,
6 Commissioner Pernell.

7 Okay. On our afternoon agenda we're
8 going to be starting off with the non-residential
9 issues, HVAC, basically everything except
10 lighting. And we'll start off with Charles Eley,
11 and I think Mark Hydeman, together, making a
12 presentation on the revisions.

13 MR. ELEY: Be sort of a tag team here.

14 So, anyway, we're going to -- the
15 presentation is laid out much the way it was this
16 morning, where we're going to try and highlight
17 the changes since the November draft.

18 Time dependent valuation affects non-res
19 as well as res, and the thing here is that we've
20 added Appendix 3 of the Joint Appendix.

21 No change on photovoltaics. Let's just
22 jump on into here.

23 With regard to the residential
24 schedules, and this is in the non-res ACM Manual.
25 We've made a few minor changes to the non-

1 residential schedule. This is based on data that
2 was collected in the non-residential new
3 construction database. And we've also added a new
4 schedule for retail, and so Table 2-3 of the ACM
5 Manual is modified to reference the appropriate
6 schedules. So this will provide just a little bit
7 more realistic modeling for retail.

8 The prescriptive requirement which
9 requires skylights in large enclosed spaces is
10 basically unchanged, but what's happened since the
11 November draft is that the accompanying language
12 in the non-residential ACM Manual has been
13 developed, and that's there.

14 With regard to cool roofs, the only
15 change that's been made since the November draft
16 is that we've developed durability standards for
17 liquid applied coatings. These durability
18 standards deal with the thickness of the coating,
19 they deal with its elasticity, and there's ASTM
20 standards that are referenced to provide the
21 necessary durability.

22 With regard to relocatable classroom
23 buildings, Section 143 had a separate table that
24 was in the November draft. Since moving, since
25 the November draft there have been a couple of

1 things that have been added to clarify that when a
2 relocatable classroom is picked up and moved, that
3 does not constitute an alteration. So you don't
4 have to upgrade it, and none of the requirements
5 in 149 are triggered whenever it's moved.

6 However, if it's upgraded in some way,
7 if the envelope is changed or the space
8 conditioning or lighting or water heating system
9 is changed, then Section 149 is triggered in those
10 cases, as if it's a stationary building.

11 We have also added an appendix ND, which
12 gives more detail about the compliance process for
13 relocatable classrooms. The issue is that when
14 they use the performance approach, these
15 classrooms can be shipped to any place in the
16 State of California, and they can be positioned on
17 the site in any orientation. So we have to make
18 multiple calculations in order to assure that the
19 classroom actually complies in a broad range of
20 conditions.

21 So the classroom has to be modeled in
22 three climate zones, and it has to be modeled in
23 12 orientations in each climate zone. It has to
24 be rotated in 15 degree increments, in other
25 words. So there's 36 simulations that are

1 involved for a relocatable classroom. But the
2 good news is once this is done, then that's it.
3 The manufacturer can ship as many of these are
4 they want to anywhere in the state.

5 With regard to laying ceiling
6 insulation. The only change here has to do with
7 how you calculate the U-factor of a suspended
8 ceiling. And there's a joint Appendix 4 which
9 talks about U-value and R-value calculations. And
10 in there, we have a method of calculating the
11 effective U-factor of lay-in ceilings to account
12 for the air leakage through that ceiling, and the
13 other effects that were accounted for in the life
14 cycle cost analysis that was considered in August.

15 There was a proposal to, there's always
16 been a 40 percent limit on glazing in the non-res
17 standards, but in the November draft we extended
18 the 40 percent limit to west facing windows, as
19 well. So you can have a maximum of 40 percent
20 total and a maximum of 40 percent west. So what
21 was missing from the November draft is how that
22 would play out in the overall envelope calculation
23 method. So Section 143 has been modified so that
24 the whole envelope trade-off procedures can be
25 used with this new limit on west facing glass.

1 There was also a requirement to permit
2 insulation to be installed on top of the
3 waterproof membrane. At first we were sort of
4 saying well, that's not a good idea, you shouldn't
5 do it. But there were some people that argued
6 that well, there are cases when you want to do it.
7 So anyway, what we've done is we, in Section 118,
8 we've placed limits on the type of insulation that
9 can be used in this unprotected manner, and
10 there's certain products that will hold up, and
11 others that won't. So that's dealt in Section
12 118.

13 And then in the Joint Appendix, on U-
14 factors, we've provided a procedure that that
15 accounts for the thermal bridging, if you will, of
16 water building up between the insulating panels
17 and the conductivity of that water. So, in
18 essence, the effectiveness of the R-value is
19 reduced if the insulation is installed above the
20 waterproof membrane.

21 In California, the cold days are
22 frequently accompanied by rain, so this is
23 something we felt we had to account for.

24 There's several clarifications and
25 changes with regard to NFRC labeling requirements.

1 One of the changes is in relation to site built,
2 or site assembled glazing. We had, previously we
3 required that site assembled glazing have an NFRC
4 label certificate when it was in a building larger
5 than 100,000 square feet, and the glazing area was
6 larger than 10,000 square feet.

7 In hindsight, it seems that the only
8 thing of significance there is the 10,000 square
9 feet of glazing. So the exception is left for
10 site assembled fenestration less than 10,000, but
11 it doesn't matter how large the building is that
12 that 10,000 square feet of glazing is associated
13 with.

14 There's a couple of other clarifications
15 that have been added with regard to NFRC labeling.
16 Most of these are in the front of the standard.

17 The --

18 MR. DAY: That last one, you --

19 MR. ALCORN: Michael, you need to
20 approach the microphones, please.

21 MR. DAY: Sorry. Michael Day.

22 Mr. Eley, if you could go back to that
23 last one there, the limit of 1,000 square feet for
24 field fabricated fenestration. Does that have to
25 do with the NFRC labeling requirements?

1 MR. ELEY: No. Field fabricated
2 fenestration are things like leaded glass windows
3 and windows that you would, that you literally
4 construct on the site from lumber and direct, and
5 glazing materials. It's not, it's a special
6 category sort of intended to deal with things like
7 stained glass windows, and those kinds of
8 construction. So there's a limit of 1,000 square
9 feet for field fabricated fenestration.

10 MR. DAY: And that's new?

11 MR. ELEY: Yes.

12 MR. DAY: Thank you.

13 MR. ELEY: Now, the prescriptive U-
14 factors in the table have been modified to be in
15 agreement with the new NFRC calculation
16 procedures. And also, the opaque envelope U-
17 factors have also been modified to agree with the
18 calculation procedures in Joint Appendix 4. These
19 were very minor modifications to the U-factors,
20 usually one-hundredth of a decimal point, and it
21 was just to get the criteria to agree exactly with
22 the calculated U-factors that result from Joint
23 Appendix 4.

24 The acceptance requirements were
25 presented in November in Appendix NJ. Since that

1 time, they've been expanded to include hydronic
2 systems and also relocatable public school
3 buildings. So that appendix has been expanded.

4 In terms of equipment modeling, the non-
5 res ACM Manual has new efficiency and capacity
6 curves added which apply to packaged equipment.
7 Previously, the DOE-2 defaults were used for that,
8 but with this change the defaults change, and then
9 there's also a procedure where you can take
10 performance data at temperatures different from
11 the ARI conditions, and use those data to develop
12 a custom curve for the particular equipment that
13 you're using.

14 The purpose of this change is to more
15 accurately modify, or more accurately model air
16 conditioning performance at high outdoor
17 temperatures. This is related in some ways to
18 time dependent valuation.

19 In terms of demand control ventilation,
20 Mark will be able to step in here, but there were,
21 we've added an exception so that the requirement
22 does not apply to classrooms. The acceptance
23 requirements in Appendix NJ have been included to
24 apply to all installations of demand control
25 ventilation, whether it's for the purpose of

1 compliance credit or not. And the language is
2 more clear about how many sensors are needed and
3 where they can be located.

4 And, finally, there was a change to
5 table, to the ventilation tables in -- what
6 section --

7 MR. HYDEMAN; It was 1-F. It's now 121-
8 A.

9 MR. ELEY: -- 121-A, yeah. The
10 ventilation rate that was in there previously had
11 assumed smoking, and smoking is not permitted
12 anywhere in California, including bars. So that
13 number has been modified to be in accord with no
14 smoking.

15 In terms of cooling towers, the basic
16 requirement remains. However, there's now a
17 requirement that CTI, or cooling tower instant
18 certification, be required for cooling towers.
19 There is an exception, however, for smaller
20 cooling towers that have less than 300 gallons per
21 minute at 95 degree condenser water return, 85
22 condenser water supply, and a 75 degree wet bulb.
23 Those are the rating conditions for cooling
24 towers, so when you look in the catalogs the GPM
25 for cooling water will be, will typically be

1 listed for 95, 85, 75.

2 In terms of hydronic system measures,
3 there were the new requirements on chiller and
4 boiler isolation, temperature recessed controls,
5 et cetera. The only thing that's changed since
6 November here is the addition of new acceptance
7 requirements, which are documented in Appendix NJ.

8 With regard to duct sealing and
9 insulation in non-residential buildings, the only
10 change since November is that we've clarified that
11 the air distribution system and duct plenum
12 acceptance applies only to the systems subject to
13 duct leakage sealing. This was the intent all
14 along, but there were a lot of people that had
15 misunderstood the previous language, so it's been
16 modified to try and provide a little more clarity.

17 MR. HYDEMAN: Charles, you might want to
18 note that there's also an updated report on that
19 measure that's available outside. It was updated
20 in the latter part of January.

21 MR. ELEY: Okay. Thank you.

22 Now, there's a new requirement that was
23 -- this is a measure that was discussed back in
24 July, but it didn't make it into the November
25 draft because we didn't have the language. This

1 is kind of a parallel requirement to one of the
2 ones in low-rise residential, where if you replace
3 the air conditioning units in certain types of
4 non-residential buildings, the ducts have to be
5 sealed in those buildings. This language is added
6 to Section 149B1D. And there's another report
7 outside that goes into more detail on this.

8 The proponents of this one were, are
9 PG&E. I think Mark Modera worked on this, and
10 Pete Jacobs, I guess, of AEC; right? And John
11 McHugh, yeah.

12 Then for ECM motors, this was brought at
13 a workshop on August 8th. It was included in the
14 November draft and there have been no changes
15 since that time. So ECM motors would be required
16 on series style fan powered mixing boxes.

17 In terms of the size requirements for
18 variable air volume control, we lowered the size
19 threshold from 25 horsepower to 10 horsepower for
20 variable speed drives. So variable speed drives
21 are now required for anything larger than 10
22 horsepower.

23 MR. HYDEMAN: Or for main axial fans,
24 you can have variable pitchblades to also meet the
25 requirement.

1 MR. ELEY: As an option, yeah.

2 So the only changes since November on
3 this are that the acceptance requirements in
4 Appendix NJ have been expanded to include testing
5 for VAV systems.

6 There was a proposal from Southern
7 California Edison to include some requirements for
8 variable speed single zone systems. These were,
9 these are the systems that are used in large
10 meeting rooms and hotels, and things like that.
11 And they're, they've shown that there's some
12 opportunity for savings if the fans can operate at
13 variable speed even though they're a single zone
14 system.

15 The decision here is that this will
16 likely be included as a compliance option. We do
17 not intend to make any changes to the standards to
18 accommodate this change, or this recommendation.

19 There were a couple of, quote, group
20 four measures. These were things that were
21 identified in, about 15 months ago, as -- and
22 these were chiller table modifications, VAV
23 pressure sensor, and various references, and there
24 are no changes here, either.

25 And that's it. Mark, do you have

1 anything to add?

2 MR. HYDEMAN: No.

3 MR. ELEY: Okay.

4 MR. ALCORN: Okay. Thank you, Charles.

5 Thank you for the lights, Mark.

6 Okay, we'll start our question and
7 comment period. I've got some blue cards back
8 from people.

9 The first speaker would be Deborah Gold,
10 at CalOSHA.

11 MS. GOLD: First I'd really like to
12 thank the Energy Commission staff for being so
13 helpful in our indoor air quality process that we
14 are conducting here, and Mr. Leber for coming and
15 speaking to our advisory committee and helping to
16 facilitate some of our interested parties'
17 participation in this process. And we're grateful
18 that you've made the change to exempt classrooms
19 from the DCV requirements.

20 We did submit a letter with comments on
21 December 23rd, and we haven't gotten a response to
22 others of our comments. I don't know if I need to
23 submit to you the letter again.

24 MR. ALCORN: Actually, we have the
25 letter. Thank you. We are, staff is organizing

1 responses.

2 MS. GOLD: Okay. We have a couple of
3 remaining concerns. One of them is we tend to --
4 around demand control ventilation. You know, we
5 tend to think of assembly occupancies as areas
6 where employees are not particularly affected.
7 But, in fact, our experience shows that's not
8 true, because our employees in the State of
9 California work in assembly occupancies. They
10 work as the performers on stage, and they work as
11 the ticket takers, and they work in offices
12 associated with the assembly occupancy that I
13 think gets included because it's kind of
14 incidental to the assembly occupancy.

15 And those people, they experience a
16 decrease in indoor air quality, that's a problem,
17 and they're affected by a variety of contaminants
18 that are not carbon dioxide related.

19 So, for example, food service, such as
20 exists in movie theaters, generates odors and
21 contaminants that can be a problem for people who
22 are exposed to them for long, you know, without
23 adequate ventilation. For example, the odor of
24 popcorn and, you know, artificial butter, which is
25 turning out to be a fairly significant lung

1 hazard. So, and there are a couple of papers on
2 that.

3 But that's just kind of an example of
4 the kinds of -- or use of theatrical fogs in, for
5 live performances. All these are things that
6 occur in assembly occupancies and are not
7 reflected by the buildup of carbon dioxide. So
8 the same concern we had for classrooms applies to
9 other assembly occupancies. There needs to be a
10 way to ventilate out non-occupant related
11 contaminants, or non-occupant generated
12 contaminants.

13 Secondly, we're concerned about the
14 responsiveness of carbon dioxide to the occupancy.
15 We, you know, we're told that we don't have to
16 worry about the carbon dioxide, we're not really
17 planning on using carbon dioxide as the indicator
18 of air quality, but just as an indicator of
19 occupancy. Yet the more we look into it, the more
20 we see that there's a substantial lag in the
21 buildup of carbon dioxide from when people enter a
22 room that was previously unoccupied.

23 And that lag, as we talked this over
24 with Andrew Prucelli, this lag can be an hour or
25 more. If you assume perfect mixing, it might be

1 an hour. If you, but in fact, one study that was
2 done showed that mixing ranged anywhere from .15
3 to .75, so then, kind of all bets are off, and
4 when that sensor sitting on the wall there is
5 going to detect the increased occupancy in this
6 part of the room, or in any other, you know,
7 similar situation.

8 So we are concerned that carbon dioxide
9 is not sufficiently responsive, and are
10 particularly concerned because you're, you're
11 raising the threshold level of carbon dioxide from
12 the 800 parts per million to 1100 parts per
13 million, and we're concerned that rooms may become
14 stuffy, odiferous, and have significant level of
15 contaminants, though probably not the levels that
16 we regulate, and the system won't be turned on
17 full. And then, of course, there still remains
18 the problem of activities in a space, like
19 construction or remodeling activities, cleaning
20 activities, and things like that, that cause
21 contaminants to be released. And when the
22 ventilation system is at this minimum flow rate of
23 .15 cfm per square foot, we are not going to get
24 enough air movement to sufficiently ventilate out
25 the vapors that develop.

1 So those are our remaining concerns on
2 this. And, you know, we're hoping that there can
3 still be some room for changes. As we've said,
4 there are studies that show that when you increase
5 250 parts per million above outside air,
6 performance decreases. And there are also a fair
7 amount of studies that show that between 800 and
8 1,000 parts per million of carbon dioxide will
9 affect people's health, perceptions of -- people's
10 health and perceptions and efficiency.

11 So, and we furnished the references for
12 a number of them to the Commission in the letter
13 that we sent on December 23rd. There's a whole
14 body of knowledge out there, and a lot of
15 publications.

16 So we would really urge you to consider
17 not going to, you know, to not -- if you're going
18 to expand the requirement for demand control
19 ventilation, that you not simultaneously increase
20 the trigger level on the carbon dioxide. That at
21 least, if you're going to make changes, that you
22 make one change at a time, because we think that
23 there's, buildings last a long time, and problems
24 in ventilation systems that CalOSHA is called in
25 to address last a long time.

1 And while we can try to get people to
2 move things up to the code, if the system was put
3 in undersized or doesn't have the capacity, or if
4 the system is difficult to maintain, it will be a
5 continuing problem for the employees in the State
6 of California, and will be a continuing compliance
7 burden and consultation burden on CalOSHA, who's
8 already functioning under limited resources.

9 Thank you very much for your help and
10 attention.

11 MR. ALCORN: Thank you for your
12 comments, Deborah.

13 Rosella.

14 MS. SHAPIRO: No, we can keep on. The
15 Commissioner just got called away for a moment or
16 two, by the Chair, about 15 minutes ago.

17 MR. ALCORN: Okay.

18 MS. SHAPIRO: So I think we can
19 continue.

20 MR. ALCORN: Thank you.

21 Mark.

22 MR. HYDEMAN: Sure. Deborah, I'll try
23 and address some of your comments, and thank you
24 for submitting those comments. I have not seen
25 the December ones yet, but I'm sure I will get a

1 copy and have a chance to give you a written
2 response, as well.

3 Let me start by saying that, and I'm
4 sure you will agree with me, indoor air quality is
5 an imprecise science, at best. And we've tried to
6 go out and contact many of the same experts that
7 you've dealt with, the folks on Standard 62, my
8 partner, Steve Taylor, is past Chair, Andy
9 Percelli, present Chair, and others.

10 And what we are responding to is the
11 current thinking amongst those bodies,
12 particularly 62 and the people that were involved
13 in the original Title 24 Section 121 ventilation
14 requirements.

15 There are two levels of ventilation
16 requirements currently in Title 24. They've been
17 there for at least a dozen years. And that is a
18 requirement for 15 cfm per person, but no lower
19 than a requirement for X number cfm per square
20 foot. It deals with building borne non-occupant
21 contaminants. And those levels include varying
22 levels -- used to be in Table 1F, it's now, I
23 believe, Table 121A -- and they vary by the type
24 of activity in the space.

25 One that was mentioned earlier by

1 Charles is the levels that were set for lounges,
2 casinos, and other activity levels like that, that
3 were previously at 1.5 cfm per square foot, with
4 the assumption that there was smoking in those
5 spaces.

6 So those background levels are still
7 there. They are an absolute floor below which any
8 CO2 sensor or demand control ventilation system is
9 not allowed to reduce the outdoor air to. In
10 other words, it is .15 cfm per square foot for
11 office spaces, but the floor in a lounge would be
12 .2 now, under the proposed change, cfm per square
13 foot, and there are other levels in that table
14 that would correspond to other spaces.

15 I have seen, myself, many studies on the
16 effects of CO2 on individuals. I am no expert in
17 this area, but again defer to Andy Percelli and
18 Steve Taylor and others, who are. And I've seen
19 lots of studies that show CO2 levels way up in the
20 2,000, 3,000 range, having little or no effect on
21 occupants' ability to perform tasks, and seem to
22 have little or no health hazards to individuals.
23 And there's also a lot of controversy over the
24 studies, very few studies that we've been able to
25 uncover on ventilation rates and productivity once

1 you get above about 15 to 20 cfm per person.

2 But, again, I think the best thing for
3 us to do is to respond directly to your concerns
4 in writing, and the studies that you have, and
5 provide that data back into the record. And I'm
6 not in a position to argue individual studies at
7 this time. Again, I'm not the expert on this.

8 But we, you know, appreciate your
9 comments, and I think there's some important
10 issues here to make sure that are addressed.
11 Certainly not all assembly areas are, in fact,
12 occupied by transient occupants. There are people
13 that work in those environments, and it's
14 important to make sure that their health and
15 comfort is maintained.

16 But, again, given the consensus of
17 experts that we've dealt with in this area, the
18 sense is that we've come up with a standard that
19 meets what already was the concerns addressed to
20 the 62 committee and others in this area.

21 MS. GOLD: Okay. Can I respond to that?
22 Because --

23 MR. ALCORN: Of course.

24 MS. GOLD: -- the ASHRAE 62, I've read
25 that standard and looked at their documentation,

1 and they don't address things like the base study.
2 Now, the base study looked at the association
3 between indoor CO2 concentrations and sick
4 building syndromes. It was a EPA sponsored study.
5 It looked at lots of buildings and found that
6 there were problems with indoor air quality when
7 you got above a thousand parts per million.

8 Similarly, that group, there is a large
9 body of industrial hygiene research that's not
10 being addressed by the ASHRAE committee or here,
11 and -- or by the underlying document that you
12 provided to us, the NISTRS document, you know.
13 And I think you can't, you need to take into
14 account that industrial hygienists have been
15 dealing with indoor air quality issues and indoor
16 air quality complaints for a long time.

17 And actually, there is a kind of a
18 consensus emerging among industrial hygienists who
19 deal with indoor air quality that when we start to
20 get higher levels of carbon dioxide, and yes,
21 there may be some variability between 800 and a
22 thousand, but most people would draw the line at a
23 thousand.

24 And so I think it's, I think you're
25 looking too narrowly when you look only at the

1 expertise of the engineering community. You need
2 to look at the expertise of the public health
3 community, as was represented by the Department of
4 Health Services comments and our comments, and the
5 ARB comments, that, you know, that there is kind
6 of a wealth of information out there. And
7 although it's an imprecise science and there can
8 always be more science, what you're doing is
9 you're moving up and you're making acceptable a
10 level, 1100 parts per million plus or minus 75, so
11 it really is 1200 parts per million, as now
12 becoming something that's acceptable.

13 And, like I said, there is a fair amount
14 of studies that show that increasing ventilation
15 rates and decreasing carbon dioxide, which may be
16 independent effects, improves performance. And
17 when we increase carbon dioxide and decrease
18 ventilation rates, we have increases in indoor air
19 quality problems, as well as sick building
20 syndrome.

21 Furthermore, when you talk about the .15
22 as a floor, that is not a sufficient level of
23 ventilation to vent out construction vapors or
24 anything else that's occurring in that space.
25 That is a, just a very low level of ventilation,

1 and I'm not sure what the scientific basis is of
2 that .15, nor have I seen a scientific
3 justification for that .15 as being sufficient
4 ventilation.

5 So I think you're, again, it's very old.
6 It reflects building designs before we had such
7 type buildings. And I don't, so I think that just
8 saying well, there's this floor who's been around,
9 so .15 is okay, that doesn't account for the fact
10 that since we have the .15 we then added into the
11 standards the requirements for ventilation per
12 person.

13 So, and I don't think that not measuring
14 carbon dioxide, just because you don't measure in
15 excess of carbon dioxide means that you've
16 sufficiently ventilated out the space of that
17 floor level.

18 MR. HYDEMAN: No. And we agree with you
19 that, again, there's two sets of contaminants.
20 There are building borne contaminants and there is
21 what's known as the bio-effluent.

22 MS. GOLD: No, there are three kinds of
23 contaminants. There are building borne
24 contaminants that just exist because you have a
25 building that's off-gassing with whatever. You

1 have activity generated contaminants that come
2 from things like food service, or theatrical fogs,
3 or other activities in the space. And then you
4 have occupant generated contaminants. And I don't
5 think that you've addressed that. That's what I
6 call the second load, I don't care what you call
7 it. You haven't addressed that group of
8 contaminants which occur more frequently than you
9 think, in workplaces.

10 MR. HYDEMAN: I look forward to looking
11 at those studies, and we'll review them, we'll
12 respond to you formally, and again, appreciate the
13 input.

14 MS. GOLD: Okay. Thank you.

15 MR. ALCORN: Thank you, Deborah.

16 Okay. Scott Alexander, are you prepared
17 to make comments?

18 MR. ALEXANDER: Thank you. I'm Scott
19 Alexander. I'm with Mobile Modular, and also
20 represent the Modular Building Institute. We're a
21 national organization that supplies relocatable
22 classrooms.

23 I've got a couple of issues that I want
24 to bring up, one that I've been working with the
25 Commission on for several weeks, and it relates to

1 the grandfathering of existing relocatable
2 classrooms. And I just recently sent an updated
3 letter, Bill, to you, and Brian, to you.

4 And what my concern there continues to
5 be is that the approving public, if you will, the
6 plan checkers that are out there, understand
7 clearly that those relocatable classrooms that
8 have been manufactured prior to this new code are
9 very clear that when they are approving existing
10 buildings, that they are not confused and trying
11 to apply this new code to those buildings.

12 The scariest part about that, I think,
13 is the new climate zones, because they are,
14 they're going to be seeing new buildings with tags
15 on them that say that these buildings are approved
16 to go into multiple climate zones, and then
17 they're going to see existing buildings without
18 those tags. And so they need to have a clear
19 understanding that those existing buildings are
20 not going to have those tags, and that they can,
21 in fact, move around the state. If they can't,
22 all of a sudden we're going to have a huge problem
23 in the state with these existing relocatable
24 classrooms.

25 I think we're close on the language, and

1 I've sent you back an updated iteration, and I
2 just wanted to make sure that we get that extra
3 sensitivity. It's very common for plan checkers
4 to treat existing relocatable classrooms as a new
5 building, and we don't need to have lengthy
6 discussions with people all the time when a
7 building is moved. We move hundreds of them every
8 summer, and that's just my firm. There's multiple
9 firms that do this, and school districts do this.

10 So I just wanted to make that point.

11 MR. PENNINGTON: We received your
12 comments, and we're going to be looking at those.
13 We're trying to help you avoid the situation
14 you're concerned about.

15 MR. ALEXANDER: I appreciate that.

16 Thank you.

17 The other concern that I have, probably
18 the largest concern that I have is on the new cool
19 roof standard. And I have to say up front that
20 I'm not very astute when it comes to cool roofs.
21 I'm probably more scared than knowledgeable at
22 this point, and so you may be able to help me
23 become more knowledgeable.

24 We have a roofing system on relocatable
25 classrooms that's giving us quite an extended life

1 right now, and it's not giving us a lot of leaks.
2 So I'm very nervous about putting a roofing system
3 or having a roofing standard imposed upon us and
4 on our school district clients that are not
5 familiar with, and that may, in fact, create leaks
6 and the problems that are associated with leaks.
7 And I'm also concerned about having a product that
8 doesn't have a warranty to back up the life that
9 I'm experiencing right now.

10 And so what I've read so far about the
11 cool roof product is that it's eliminating some of
12 the easy manufacturing things that we would like
13 to do. And to be a bit specific about that, what
14 it appears to us is that this is a product that
15 will have to be sprayed on or applied in some way
16 during the manufacturing process. That's very
17 laborious, and it's also a very temperamental
18 process for us.

19 We manufacture buildings when it's 36
20 degrees outside, when it's 105 degrees outside,
21 when it's foggy, when it's raining. There's a
22 variety of conditions, and we have to have a
23 product that we can use. The standard that you
24 have set, we're really looking for comfort that,
25 A, that there's a lot of suppliers out there that

1 can supply this product; B, that the warranty that
2 they have is substantive, and I want to really
3 emphasize that, that they are going to show up
4 eight years from now, eleven years from now, and
5 they're going to repair that building.

6 Right now, that's what schools districts
7 get. So if we're going to give them something
8 different mandated, they ought to know that. And
9 I think we really do need to do some research
10 within the users, people that have experienced
11 this product over an extended period of time. I
12 get a little fearful when we have a salesperson
13 and a supplier. They come in to see me regularly,
14 saying, hey, this'll last for 15 years, or this'll
15 last for 20 years; I need to have some real data
16 that it will, and a warranty that supports that is
17 a big item for me, and some customers that have
18 used it for a long period of time in a similar
19 setting where maintenance guys are up on the roof
20 all the time, getting balls and rocks off the
21 roof, and things like that.

22 So I guess what I'm really asking for is
23 more research on this, and research based on how
24 this product is going to be used. So that's what
25 I'm appealing to.

1 MR. ALCORN: Okay.

2 MR. ELEY: Just one question, if I may,
3 Scott. Do you know what type of roof system you
4 currently use?

5 MR. ALEXANDER: Yes, I do. It's a
6 standing seam galvanized metal roof. And that's
7 what's commonly used on relocatable classrooms.

8 MR. ELEY: Galvanized metal.

9 MR. ALEXANDER: That's correct.

10 MR. ELEY: All you'd have to do is just
11 paint it, use an industrial coating, rather than
12 the galvanizing. That would --

13 MR. ALEXANDER: And my concern is, is
14 that if that's a paint that can be applied to the
15 sheet goods before it goes through the machine,
16 which I haven't --

17 MR. ELEY: Yeah, that's the way it is.
18 The process is the coil's manufactured by
19 Bethlehem, or somebody. Then it goes to a coil
20 coater, and they put an industrial coating on
21 there that's nails hard. It --

22 MR. ALEXANDER: That's terrific. I,
23 just so that you know, I've checked with three
24 suppliers so far, and they haven't been able to
25 tell me for certain that it'll meet the solar

1 emittance -- or, excuse me, the thermal emittance
2 and the solar reflectivity. Everybody's assured
3 me that they can spray on a finish that will meet
4 the cool roof requirements, but not that will run
5 through the machine.

6 And if you think about the manufacturing
7 process, it's a big difference to us. And then
8 the warranty on the spray-on was substantially
9 less than the painted on finishes you have
10 described. That finish came with a really
11 substantive warranty.

12 MR. ELEY: Probably what you're using
13 now is a finish on the metal, which can be formed
14 after the finish is placed on. And the same can
15 be, the same is true of an industrial grade
16 coating --

17 MR. ALEXANDER: Okay.

18 MR. ELEY: -- that's applied to that
19 same metal substripping.

20 COMMISSIONER ROSENFELD: Could I make a
21 comment, just to back up Charles Eley.

22 I've been involved with cool roofs for
23 years. As far as I know, what Charles says is
24 completely correct, that any, any enlightened
25 manufacturer who produces a galvanized roof can

1 produce the same thing with a white finish.

2 I've been writing papers on cool roofs
3 for 20 years, and they usually have in them the
4 statement that a galvanized, as opposed to a white
5 roof, is one of the stupidest roofs that you could
6 possibly put on. They run slightly hotter than
7 black. Your air conditioning bill is huge.
8 That's a bad thing during the daytime, and at
9 night, because they are reflective, have a low
10 emittance, they can't radiate to the night sky so
11 the classroom doesn't get cool at night.

12 Even the Chinese require, for metal
13 roofs, that they be anodized white. Every school
14 bus in the state has to have a white roof. If the
15 school buses can do it, I think it's time for the
16 schools themselves to figure out how to do that.

17 MR. ALEXANDER: That all sounds fine to
18 me. The one concern I would come back to is, is
19 the products that you've mentioned, are they
20 readily available, that meet the thermal emittance
21 and the solar reflectance that you've called out?
22 Because, again, as we've called suppliers, they've
23 sort of --

24 COMMISSIONER ROSENFELD: Solar
25 reflectance means white, and so -- yes, it's the

1 emittance has to be greater than that of
2 galvanized steel. Galvanized steel has an
3 emittance of .3, and national roofing -- National
4 Cool Roof Rating Council requires -- greater than
5 .8, which is attainable by any paint, and is not
6 attainable by galvanized.

7 MR. ALEXANDER: Okay. And we can run
8 that right through our machines, is what you're
9 saying.

10 COMMISSIONER ROSENFELD: Yes.

11 MR. ALEXANDER: That's perfect. That --

12 MR. ELEY: I think that's --

13 MR. ALEXANDER: -- that probably will --

14 MR. ELEY: -- that's not, should not be
15 a problem.

16 MR. ALEXANDER: -- will placate all of
17 the manufacturers in the state, then. I think
18 that's fine.

19 The last concern I have would be on dual
20 pane windows, and it's actually a similar concern,
21 and I've addressed this with you several times. I
22 think dual pane windows are a good product and I
23 think it's a very energy efficiency product. I
24 have a bit of a concern with how the calculations
25 are being done on this product, the life that's

1 being given to them.

2 I'm not seeing dual pane windows last 15
3 years, with the seals and such, move down the
4 highways and lasting on school sites. And so I
5 just ask that the calculations be viewed with that
6 jaundiced eye. And if they work, terrific. If
7 they don't, and I think you need to evaluate it
8 that way, and you might want to include some
9 facilities people in those discussions with how
10 long windows really last.

11 I just get concerned when warranties
12 don't match the life, and when end users won't
13 tell you that they last that long.

14 COMMISSIONER PERNELL: Let me ask you a
15 question. This is Commissioner Pernell.

16 Are you saying that dual pane windows in
17 portable classrooms, when they move down the
18 highway they all, somehow they don't last?

19 MR. ALEXANDER: I'm saying that the
20 seals on dual pane windows are suspect anyway, and
21 the movement of buildings --

22 COMMISSIONER PERNELL: But that's from
23 the portable classroom industry or from the home
24 builders? This is sort of new to me, so I have to
25 ask the question.

1 MR. ALEXANDER: Yeah, and I understand
2 completely. The seals on dual pane windows have
3 been problematic for us. Moving them down the
4 highways is a problem. The warranties from the
5 suppliers is not really that terrific, and what I
6 saw from the calculations that were put forth, I
7 think by the Davis Energy Group, was that they
8 were given a 15 year life, and I'm guessing at
9 that number, so, Brian, please correct me.

10 And I felt that life was too long. I
11 didn't think that the manufacturers would stand
12 behind the seals that long. And that wasn't our
13 experience. If a client called me and said jeeze,
14 would you warranty these dual pane windows that
15 you're supplying me for 15 years, I'd have to say
16 no.

17 The other thing is, is that we replace a
18 lot of broken windows when they come back into our
19 fleet from school districts. Many school district
20 clients of ours specifically request single pane
21 windows, because they don't want to bear the
22 expense of replacing broken dual pane windows.
23 And so my comment to the Commission was I think
24 that needs to be looked at, because they are
25 commonly repaired as a result of vandalism. That

1 is just a fact.

2 Now, how that weighs into your
3 calculation, I can't say. I'm not astute enough
4 to --

5 COMMISSIONER PERNELL: I don't know that
6 we can factor in vandalism into the calculation.

7 Let me ask you another question. You
8 represent the manufacturers?

9 MR. ALEXANDER: I represent Mobile
10 Modular and the Modular Building Institute. The
11 Modular Building Institute is a group of dealers
12 and manufacturers.

13 COMMISSIONER PERNELL: Do you know the
14 approximate life of a portable classroom?

15 MR. ALEXANDER: Well, I can tell you how
16 long we're getting out of them. We're getting 20
17 years and greater.

18 COMMISSIONER PERNELL: And to your
19 knowledge, have they changed the manufacturing
20 techniques of putting these classrooms together?

21 MR. ALEXANDER: Yes.

22 COMMISSIONER PERNELL: Okay. I would
23 just suggest, though, if there's a warranty on a
24 dual pane window --

25 MR. ALEXANDER: Uh-huh.

1 COMMISSIONER PERNELL: -- then you can
2 get that from the window manufacturer, and they
3 should give you some specs on how to put that
4 window into a portable classroom and make it last
5 for that warranty. I don't know, you're asking
6 us, but I'm not sure that we're the right people
7 to be asking about whether the warranty is going
8 to be good in a portable classroom.

9 MR. ALEXANDER: Yeah. I'm not asking
10 you that as much as I'm saying that if we're going
11 to estimate a long life on a product, that I think
12 that the warranty should match that. And if you
13 call a supplier and say well, jeeze, how long will
14 this product last, and they -- because I want to
15 use that to calculate the life of it, and that's
16 the savings the district is going to get over that
17 life of the product, it's one thing when a
18 salesman says it'll last 20 years, it's another
19 thing when you look at their warranty and it's
20 only five.

21 COMMISSIONER PERNELL: Yeah, but, I
22 mean, look at the automobile industry. How much
23 warranty do they give you on your automobile when
24 you buy it new, versus how long it lasts?

25 MR. ALEXANDER: It's a valid point, and

1 it all depends on the use of the automobile, and
2 some automobile manufacturers supply a longer
3 warranty.

4 COMMISSIONER PERNELL: All right. Thank
5 you.

6 MR. ALEXANDER: Thank you.

7 That's the end of my comments.

8 MR. ALCORN: Okay. Thank you very much,
9 Scott.

10 MR. ALEXANDER: Thanks, Brian.

11 MR. ALCORN: Okay. Next, James Furlong,
12 from Baltimore Air Coil.

13 MR. FURLONG: Good afternoon. My name
14 is Jim Furlong, I'm with Baltimore Air Coil
15 Company. We're a manufacturer of evaporative heat
16 transfer equipment and ice thermal storage
17 systems.

18 And I'd like to begin today by thanking
19 the staff for the efforts it's put forth with
20 regard to the inclusion of a provision mandating
21 third party certification of cooling tower
22 performance in Table 112H of the 2005 standards.

23 It's our firm belief that third party
24 performance certification is the only cost
25 effective means by which end users can be assured

1 of realizing the true thermal performance of a
2 given piece of heat rejection equipment. We are
3 convinced that the impact of this decision will be
4 far more significant for the California energy
5 grid than anyone may suspect.

6 We would, however, recommend two changes
7 be made to Table 112H, which will further its
8 benefit.

9 The current table makes no reference to
10 minimum performance standards for closed circuit
11 cooling towers. For all the same reasons
12 supporting the inclusion of CTI certification of
13 open cooling towers, we believe minimal efficiency
14 standards should be established for closed circuit
15 cooling towers, and that such performance
16 standards should be certified, or the
17 manufacturer's performance should be certified by
18 CTI.

19 Because of the extra step of heat
20 transfer associated with closed circuit cooling
21 towers, those products typically require two times
22 the fan horsepower of open cooling towers, making
23 the establishment of realistic energy standards
24 for those products even more important.

25 The second change we would recommend is

1 related to Note C on the current draft of Table
2 112H, which excludes cooling towers with a nominal
3 capacity of 300 gpm or less at the table's rating
4 conditions from requiring CTI certification. We
5 believe the note should be eliminated in its
6 entirety for a number of reasons.

7 These reasons include, number one, the
8 share of the market that it's excluding is
9 significant. Just looking at our own data, fully
10 24 percent of the cooling towers we've shipped in
11 to the State of California since 1999 have been of
12 100 nominal tons or less, which is roughly
13 equivalent to the 300 ppm threshold that's called
14 out in the table. And the way we see it, why
15 should the purchasers of these smaller capacity
16 systems not be provided with the same level of
17 performance certification as the purchasers of
18 larger systems.

19 And secondly, when you look at towers
20 below 100 tons, the vast majority of cooling tower
21 manufacturers who provide those products already
22 provide them with CTI certification as part of the
23 package. I've got some data here showing the
24 profile of cooling tower shipments to California,
25 which I'll be happy to share with the staff later

1 on.

2 And lastly, with regard to a minimum
3 threshold, I think it can be argued that CTI
4 certification provides the most benefit for the
5 owner of a smaller cooling tower, because the cost
6 of hiring an independent testing agency to verify
7 the performance in the field would be
8 prohibitively high with respect to the purchased
9 equipment price. We believe it's highly unlikely
10 that any effort will be expended to verify the
11 performance of smaller systems in the absence of a
12 mandated CTI certification requirement.

13 Those are basically my comments, and I'd
14 be happy to take any questions on them.

15 MR. ALCORN: Terrific. Thank you.

16 COMMISSIONER PERNELL: I have a
17 question. I have a question on the, the CTI
18 certification. How much is, what's the
19 approximate cost of that?

20 MR. FURLONG: We did some calculations,
21 and we found the cost to be less than two-tenths
22 of one percent of our overall manufactured cost of
23 the products that are CTI certified. So it's very
24 negligible.

25 COMMISSIONER PERNELL: Okay. It doesn't

1 help me to understand it when you tell me that
2 it's less than one-tenth or one --

3 MR. PENNINGTON: You submitted a letter;
4 right?

5 MR. FURLONG: I did.

6 MR. PENNINGTON: And we copied that
7 letter. Do you have the letter, the two PAC
8 letters?

9 MS. SHAPIRO: I don't think I do up
10 here.

11 MR. PENNINGTON: I believe it was --

12 COMMISSIONER PERNELL: Well, let me just
13 tell you my point, because you're, you're saying
14 that we shouldn't have a minimum gpm for the CTI
15 certification. Is that what you're saying?

16 MR. FURLONG: Correct. That's what
17 we're recommending.

18 COMMISSIONER PERNELL: And so you're
19 saying that every cooling tower should have a CTI
20 certification.

21 MR. FURLONG: Well, that's --

22 COMMISSIONER PERNELL: That's what
23 you're advocating.

24 MR. FURLONG: That's what we're
25 advocating.

1 COMMISSIONER PERNELL: And the range
2 from the smallest cost of a cooling tower to one
3 of the largest ones, what's the difference in the
4 price range?

5 MR. FURLONG: The difference in the
6 price range is almost proportional to the, to the
7 size of the tower. I mean, it is significant.

8 COMMISSIONER PERNELL: Right. Well,
9 okay, let me ask this a different way. I'm trying
10 to get a number out of you.

11 (Laughter.)

12 COMMISSIONER PERNELL: What's the,
13 approximately, what's the cost of the smallest
14 cooling tower that's being installed in
15 California, to your knowledge?

16 MR. FURLONG: Oh, I'm going to guess
17 it's \$80 a ton times -- it's probably 12, \$1200,
18 something on the order of that.

19 COMMISSIONER PERNELL: All right. And
20 then, okay. So what's your approximate cost of
21 the largest, one of the larger units?

22 MR. FURLONG: The largest units we make
23 could run in excess of \$100,000. I, I think I
24 know where your questioning is going here, and
25 what I think you need to understand is that the

1 cost of CTI certification is by product line. So
2 if you have a product line that ranges from, let's
3 say, ten tons in capacity up to 500 tons in
4 capacity, you pay one price to have that entire
5 line certified. So it doesn't make any sense --

6 COMMISSIONER PERNELL: Regardless of the
7 size of the unit, it's the product line.

8 MR. FURLONG: That's correct. That's
9 where your real costs are from the manufacturer's
10 standpoint.

11 COMMISSIONER PERNELL: Right. So if I
12 had a cooling tower that, one of these larger
13 systems that's a hundred grand, there's a product
14 line from that all the way down the line. And so
15 all of those would be CTI certified?

16 MR. FURLONG: Correct. It's, to put it
17 in perspective with all product lines, the
18 smallest units we sell, these ten ton units, that
19 product line I believe extends up to 400 tons.
20 And then there's another product line that starts
21 at perhaps 100 tons, and goes up to 1200 tons.

22 COMMISSIONER PERNELL: Right. So given
23 that premise, would you say that some of the
24 smaller units in this state is CTI certified? If
25 the larger ones are under that product line, and

1 CTI certifies the entire product line, I mean, it
2 kinds of stands to reason that some of the smaller
3 ones that you were talking about are also
4 certified.

5 MR. FURLONG: That is absolutely
6 correct. And that's our point. Why should we
7 eliminate, exempt a small portion of a product
8 line that already is certified, to leave room for
9 a manufacturer to come in and perhaps only build
10 the product line up to that threshold in order to
11 keep it uncertified.

12 COMMISSIONER PERNELL: Okay.

13 MR. FURLONG: That, that's the point
14 we're trying to make.

15 MR. ALCORN: Okay. Mark Hydeman.

16 MR. HYDEMAN: Jim, I appreciate your
17 comments, and again, this has been somewhat of an
18 emerging issue. We were reacting to ASHRAE
19 Standard 90.1. Let me try and step through your
20 individual issues.

21 First, I'd like to talk about what we've
22 always called closed circuit fluid coolers, or the
23 closed circuit cooling towers you were talking
24 about.

25 I was part of the joint Standard 90.1 TC

1 8.6 committee that did the original study for,
2 like bicycle cost effectiveness and efficiency in
3 towers. We left closed circuit food coolers off
4 the table at that time, because it didn't seem
5 like there was a lot of bang for the buck. It's a
6 relatively small part of the market, and it took a
7 fair amount of effort to get all of the cost data
8 and develop the computer models to do the study.

9 In this round of the standard I don't
10 believe there's any way that we have the time to
11 go through a study like we did for open cooling
12 towers, or any of the other process of mechanical
13 equipment. As long as they are covered by the CTI
14 ATC standard, then we should be able to do that in
15 the future, but I, I suggest that we set our
16 targets on 2009 -- 2008. And we, I'd be glad to
17 work with you jointly, first to adopt it in 90.1,
18 and then in California.

19 But I, I would suggest that, again, it's
20 a small part of the market. It's important. We
21 took the first step of ever putting any efficiency
22 requirements on cooling towers, and that was our
23 objectives in the 91.1 process, which we have
24 since adopted here.

25 Now, the separate issue on

1 certification. As a consulting engineer, I am a
2 very strong advocate of certification. I like to
3 know what the product does. In fact, when we
4 order chillers we ask for zero tolerance data with
5 a factory witness test. But there was some
6 concern from some of the manufacturers,
7 particularly in some of their smaller lines, and
8 it really got down to the low profile blow-through
9 centrifugal towers.

10 And so one proposal that's on the table
11 that I'd just like to get your response to is to
12 drop the size range, in other words, require CTI
13 certification for all factory assembled, because
14 there's a separate issue of fuel directed. So
15 factory assembled towers would be CTI certified,
16 with an exception for these centrifugal fan blow-
17 through towers, potentially. And then there's the
18 other issue of what do we do with fuel directed.

19 So if I could get, I know I'm catching
20 you a little bit unawares, if I could get your
21 reaction I'd appreciate it.

22 MR. FURLONG: Well, the idea of factory
23 assembled towers being CTI certified, I mean,
24 basically that is our interest, is only in the
25 world of factory assembled towers. Although I

1 don't see any logic in excluding centrifugal fan
2 blow-through versions of factory assembled towers.
3 I, I just can't see where that would possibly fit
4 in.

5 MR. PENNINGTON: Let me ask a question.
6 You said that 24 percent of Evapco's sales to
7 California --

8 MR. FURLONG: BAC.

9 MR. PENNINGTON: I'm sorry.

10 MR. FURLONG: BAC sales to California.
11 Yes.

12 MR. PENNINGTON: It's not the first time
13 I've made this mistake.

14 I'm wondering what portion of that are
15 the blow-through versus the induced.

16 MR. FURLONG: I could provide that data
17 to you.

18 MR. PENNINGTON: You have a rough feel
19 for that.

20 MR. FURLONG: Yeah, a rough feel, I
21 would guess -- you're saying of that 100 ton and
22 smaller category?

23 MR. PENNINGTON: Yeah.

24 MR. FURLONG: Just, I would guess it's
25 about 50/50, in terms of our sales, because we

1 have a product line of axial fan units that are
2 actually the smallest capacity of all, and just
3 shooting from the hip, I would guess it's about
4 half and half. But I'd be happy to provide more
5 accurate data to you.

6 MR. PENNINGTON: So I'm talking about
7 blow-through, I'm talking about the exception that
8 Mark's thinking about.

9 MR. FURLONG: Which is blow-through and
10 centrifugal --

11 MR. PENNINGTON: And centrifugal, both.

12 MR. FURLONG: Yeah. I, well, all of our
13 centrifugal fan cooling towers are blow-through
14 design. And I think that's the same of all the
15 other manufacturers in the industry who make
16 centrifugal fan towers. But that, it's a huge
17 portion of the market.

18 MR. PENNINGTON: What Evapco has said to
19 us is that it's really a relatively small portion
20 of their centrifugal fan towers that are force
21 draft.

22 MR. FURLONG: As far as I know it's 100
23 percent of their centrifugal fan towers are force
24 draft.

25 But I, I guess I'm still not even

1 understanding the distinction. Why, would it,
2 what's the difference, if it's force draft, blow-
3 through, or a centrifugal fan, the issue is
4 cooling tower certification, and certified thermal
5 performance.

6 MR. HYDEMAN: Well, the argument's been
7 made, I'm not sure that I necessarily agree with
8 it, that this class of towers, these smaller
9 towers, are going head to head with air cooled
10 equipment that is not certified. And I've turned
11 around and looked at it, and I said well, look,
12 we've got ARI standard efficiency requirements
13 generally provided by equipment manufacturers that
14 are ARI members, for all the air cooled, with the
15 sole exception of what we call, I guess like a
16 split system chiller, where you have a air cooled
17 condenser. And I, I don't believe that ARI
18 actually has a rating procedure for that. Perhaps
19 they do no, but they didn't at the time I was on
20 90.1.

21 And so it seemed to me like that was a
22 little bit of a specious argument, but nonetheless
23 it's one that we need to address, research and
24 address, because, again, we don't want to force
25 people or to encourage people to go to a less

1 efficient system.

2 And the original thought with the 100
3 ton capacity was that it coincided with a
4 limitation we were putting on air cooled chillers,
5 so that there was some overlap between the two
6 requirements.

7 MR. FURLONG: I think I kind of
8 understand the background to the argument, but at
9 the end of the day, relieving a manufacturer of
10 third party performance certification, what
11 benefit would that be to the manufacturer unless
12 that manufacturer intended on inflating his
13 ratings. I, I don't follow the end logic on it.

14 MR. HYDEMAN: The argument was made that
15 they're in a very low margin business competing
16 against air cooled equipment, and that the cost of
17 certification would cause them to drop out of the
18 California market, perhaps.

19 MR. FURLONG: We're in that same
20 business and we've had certified products, and
21 nothing but certified products on the market
22 through the last 15 years.

23 MR. HYDEMAN: Appreciate your comments.
24 And we'd love to see that data if you could
25 separate those towers out and give us --

1 MR. FURLONG: Be happy to share that
2 with you.

3 MR. HYDEMAN: Thank you.

4 MR. FURLONG: Thank you very much.

5 MR. ALCORN: Thank you, Jim.

6 Steve Blanc.

7 MR. BLANC: Steve Blanc, PG&E. I just
8 wanted to note to Bryan, I just wanted to talk to
9 the H factor sheets at this point. I'll come back
10 and talk to that lighting issue later.

11 It's good that we followed up on
12 Baltimore air coil. We just wanted to put it on
13 the record that PG&E supports the idea of
14 certifying its towers.

15 COMMISSIONER PERNELL: All of the
16 towers, regardless of the size?

17 MR. BLANC: Regardless of the size. I
18 mean, I think that he, that Jim made a pretty good
19 commentary on the fact that the cost is very
20 minor, but we're more concerned with the fact that
21 our customers actually understand what they're
22 getting, and that that information is certified by
23 a third party.

24 Personally, I like to see as much
25 factory built equipment out there as possible,

1 because I find that it tends to be more reliable
2 for our customers. It tends to last longer, it
3 tends to work better. And other than that, I will
4 defer to Mr. Hydeman and others for the technical
5 details. But we just wanted to go on record that
6 we support that idea.

7 Secondarily, I wanted to address for a
8 moment the acceptance testing issue, specifically
9 having to do with economizers. Mr. Eilert would
10 like to address that larger issue for the company.

11 But specifically talking about
12 economizers, and for those of us who were at
13 ASHRAE last week, in the cold in Chicago, there
14 was a presentation of some of the data on one of
15 the later PIER projects having to do with looking
16 at economizers in California.

17 Now, there were two sides to this issue.
18 One, I believe it was Dr. Sonderager from AEC,
19 brought up the issue where they looked at 215
20 sites, 70 percent of which were not functioning.
21 They also, we also got some more data about a
22 dozen units that were factory assembled, and of
23 those, 11 were operating. Now, that's a small
24 number, but it's also a significant difference in
25 terms of the operative ability of these

1 economizers.

2 However, the acceptance testing and the
3 general regulatory atmosphere toward economizers
4 in this state proceeds, we would really like to
5 see it proceed in a fashion that pushes as many
6 economizers to be factory assembled and tested as
7 possible. We're finding that they're more
8 reliable, that they work. And, trust me, I'm
9 actually involved in doing our own buildings now,
10 and I see the same thing I saw in every other
11 customer's building. The economizers never work.
12 And we have to change that situation.

13 MR. HYDEMAN: Can I respond briefly,
14 Bryan?

15 MR. ALCORN: Of course, Mark.

16 First of all, thank you for your
17 comments, Steve. If you look in the acceptance
18 requirements for economizers, we went around with
19 Jeff Johnson from the New Buildings Institute, in
20 developing the acceptance requirements that are in
21 Appendix J of the non-res manual.

22 One of the things that we adopted was
23 that you either had to perform field tests to
24 verify that the economizers were, in fact,
25 operable, as in they're plugged in and they're not

1 jammed, the two main failure modes, or, they could
2 come factory assembled and certified as
3 operational, and that would be acceptable for the
4 acceptance test. So we're trying to push the
5 market, as well, to move in that direction.

6 Right now, only one of the manufacturers
7 does that currently, but it's quite possible,
8 because of this requirement, you'll begin to see
9 the other manufacturers assemble this --

10 MR. BLANC: And I think, again, that's
11 the point we want to make. Going forward, I think
12 it's-- being that economizers have one of the
13 largest potentials for energy savings for so much
14 of our service territory, and being that that
15 potential up to now has been largely unattained,
16 because of whatever, that we really, really try to
17 get as much of the factory assembled rooftop
18 equipment as we can. And I'll throw out a number
19 at this point, but I would say up to 50 tons, do
20 we really need to look at the larger rooftop
21 units, the multi-zones, the single zone types of
22 units, that we really try to find ways of giving
23 those manufacturers extra credit toward getting
24 them factory certified, because I think that that
25 will improve the reliability issue.

1 Thank you.

2 MR. HYDEMAN: One other thing, just to
3 correct the record. The gentleman that Steve
4 Blanc was referring to is actually Pete Jacobs,
5 from AEC, not Dr. Robert Sonderager. Sonderager
6 was giving a paper in the same presentation, but
7 it was on the reliability of utility transformers.

8 MR. BLANC: You're right. Thank you.

9 MR. HYDEMAN: It was a great
10 presentation.

11 MR. BLANC: It was Wednesday, I was
12 tired.

13 MR. ALCORN: Thank you for your
14 comments, Steve, and Mark.

15 Patrick Eilert, some comments?

16 MR. EILERT: Thank you. Pat Eilert,
17 PG&E.

18 I don't have too much to add to what
19 Steve just said, but PG&E folks internally have
20 had several discussions internally, recently,
21 about the acceptance requirements, and I think
22 it's fair to say that generally we've become a lot
23 more comfortable with where the CEC is landing on
24 most of these things. And so we think it's a good
25 effort at this time.

1 A little more on the economizer side. I
2 think we can recommend that the testing be
3 mandatory for the economizers, because, you know,
4 it's pretty clear that they don't work. There's a
5 huge need, and I believe that there's no kind of
6 absolute level of expenditure required to kind of
7 develop the market. There's, because, you know,
8 it's not third party testing out there, or
9 anything. And we have a lot of time to work on
10 this issue.

11 So if we can't do something like that,
12 at a minimum there ought to be a penalty built
13 into the standards for not testing.

14 Thank you.

15 MR. ALCORN: Thank you, Pat. Any
16 response to that, Mark?

17 MR. HYDEMAN: Again, Pat, I suggest you
18 look at the way the requirements are structured.
19 If you want to comply with Section 144, the
20 economizer requirement, you also have to comply
21 with the acceptance requirements. There's a
22 section, I can't cite it chapter and verse, but
23 it's in that Section 144. It then refers you to
24 the ACM Manual.

25 So if you want to have a complying

1 economizer, you then are referred to Appendix J of
2 the ACM Manual. That gives you two paths to
3 comply, in terms of the performance requirements.
4 One is you get a certification from the
5 manufacturer that the economizer was installed,
6 tested, and certified by the factory to be
7 operational when it shipped. And the second is
8 you perform a field test.

9 If I heard you correctly, I believe
10 you're saying we should eliminate the factory
11 installed and just require field tests in all
12 cases.

13 MR. EILERT: No, that's not what I'm
14 saying.

15 MR. HYDEMAN: Okay.

16 MR. EILERT: I, I accept the exemption
17 there.

18 MR. HYDEMAN: Okay.

19 MR. EILERT: But what I'm saying is on
20 the performance side you really don't have to do
21 anything. And I don't think we're going to get
22 anything out of this if we don't require mandatory
23 testing for those that are not certified by the
24 manufacturer.

25 MR. HYDEMAN: In my, as I read the words

1 that are in there, the intention is that they are
2 required to be tested, period, one way or the
3 other.

4 MR. EILERT: So they're mandatory.

5 MR. HYDEMAN: They're -- remember, an
6 economizer is a prescriptive requirement, so there
7 are other ways of applying to the standard. You
8 can have a more efficient unit, drop the
9 economizer. You can not have an economizer on a
10 large unit, you go the performance method. But
11 when you have an economizer, the standard is
12 requiring that you test them and certify that
13 they're operational.

14 MR. EILERT: That's only prescriptively.

15 MR. HYDEMAN: Only prescriptively.
16 Right.

17 MR. ALCORN: Excuse me, guys. Jeff
18 Johnson, are you on the line?

19 MR. JOHNSON: Yes, I am.

20 MR. ALCORN: Okay. Would you like to
21 provide some comment here?

22 MR. JOHNSON: Yes. Section 144 actually
23 applied to the prescriptive approach. So whenever
24 you do the performance approach, unless it's
25 specifically rated in the performance section

1 which applies, these requirements would not apply.
2 So in the case of an economizer being used, doing
3 the prescriptive approach I would require doing, I
4 would require that the acceptance test. If I --
5 that economizer using the performance approach, I
6 would not extend the -- I would not be required to
7 do acceptance testing on that unit.

8 MR. HYDEMAN: : As I understand what Jeff's
9 just said is that there are two classes of
10 economizers, those that are required and are being
11 installed for compliance with Section 144,
12 prescriptive standards, and those that are
13 voluntarily being put on systems.

14 Right now the acceptance testing is only
15 for the ones that are required. Is that correct,
16 Jeff?

17 MR. JOHNSON: Actually, either required
18 or -- you know, they did do a performance approach
19 on the unit with a -- unit. Under the
20 prescriptive requirement they'd have to test.
21 Under the performance requirement, they would not.

22 MR. PENNINGTON: So let me just see if I
23 can make this crystal clear.

24 If you go the performance approach and
25 you put in an economizer, and you take credit

1 against the energy budget through the performance
2 approach, the requirements for acceptance testing
3 don't kick in. They only kick in on the
4 prescriptive side. And so what I hear Pat asking
5 for is that this requirement be moved to the
6 mandatory section.

7 MR. HYDEMAN: Right. The testing.

8 MR. PENNINGTON: Yeah, the acceptance
9 test.

10 COMMISSIONER PERNELL: All right.
11 We're not getting all this conversation, at least
12 not up here. Mr. Pennington, what did you hear--

13 MS. SHAPIRO: It's got to work; right?

14 (Laughter.)

15 MR. PENNINGTON: Well, I guess Pat's
16 point is that the standard's got to work, rather
17 than the economizer's got to work.

18 Right now the requirement for acceptance
19 testing for economizers is invoked if you are
20 using an economizer to comply prescriptively. And
21 if you go performance approach and you put in an
22 economizer, you don't have to have the acceptance
23 testing done.

24 And Pat's saying don't do that.

25 MR. EILERT: That's right.

1 MS. SHAPIRO: We got that part.

2 MR. EILERT: It's my understanding that
3 under the performance method, you don't get a
4 credit or a penalty.

5 MR. DODD: This is Martin Dodd. Can I
6 add a comment?

7 COMMISSIONER PERNELL: Wait a minute.
8 Hold on, Martin. We have someone at the mic.

9 Is that true, Jeff?

10 MR. JOHNSON: That's correct.

11 MR. PENNINGTON: You know, I don't
12 understand the question.

13 MR. EILERT: Whether you test or not, it
14 doesn't matter under the performance method.

15 MR. PENNINGTON: Correct. So you're not
16 getting any credit relative to the testing that's
17 separate from doing the economizer.

18 MR. EILERT: But going back to the basic
19 point, it just seems to me for economizers,
20 specifically, some mandatory testing is actually
21 in order here.

22 MR. HYDEMAN: But you would be happy, in
23 terms of this comment that you made, you'd be
24 resolved if the performance verification required
25 for all installed economizers, whether they're to

1 comply with the prescriptive requirement or not.

2 MR. EILERT: That's right.

3 MR. PENNINGTON: So moving this to the
4 appropriate mandatory section, and I can't find
5 the section here -- 122, I guess.

6 MR. HYDEMAN: I think based on the NBI
7 research that -- sorry, the PIER research that's
8 been done by AEC, that that would be justified,
9 and I think we can move forward on that.

10 MR. EILERT: And we're completely happy
11 with the exception in there, too, for factory
12 certified.

13 MR. ALCORN: Okay. MartYn, did you have
14 a comment?

15 MR. DODD: Yeah. The ACM Manual
16 specified in the appendix that the acceptance
17 requirements have to be performed on all those
18 measures. So it's not exempted from the
19 performance approach. It's right there in the
20 appendix.

21 MR. PENNINGTON: The appendix is
22 referenced from the standards to the appendix. So
23 the appendix applies wherever the standard says it
24 applies. And the standard says it only applies
25 prescriptive, for prescriptive compliance. So

1 unless there's something in the text of the ACM
2 that you found that also says that the appendix
3 applies, then you're incorrect.

4 So, and we can fix this, I think.

5 MR. ELEY: Yeah, I think this is
6 fixable. It's easy.

7 MR. ALCORN: Okay. Are there any
8 remaining comments? David Goldstein.

9 MR. GOLDSTEIN: David Goldstein, NRDC.
10 Just two brief comments.

11 One, there's a very interesting
12 requirement for daylighting availability in large
13 spaces, but the text is very restricted as to
14 which spaces qualify. It has to be a low-rise
15 building as opposed to the top floor of a high-
16 rise building, high ceilings, large space. Are
17 all those restrictions necessary? Couldn't we
18 make this more applicable?

19 MR. ELEY: The, I'm speaking for the
20 proponents here, but I believe the intent was to
21 make this apply to, you know, to large warehouses,
22 manufacturing, plus big box retail spaces, but not
23 to really get into multi-story offices and that
24 kind of thing.

25 So that, that was the intent. John, do

1 you want to -- did I accurately characterize your
2 intent?

3 MR. McHUGH: Yes, you did, Charles.

4 This is John McHugh, Heschong Mahone Group,
5 representing Pacific Gas and Electric Company.
6 And we, this is actually a fairly major step in
7 terms of how we look at the envelope of a
8 building. And we selected the building
9 configurations where skylights are most cost
10 effective and most easily applicable. And the
11 building classifications that we find skylights
12 are being already readily embraced through the
13 market transformation programs, and also by
14 various companies for those building types.

15 It's my expectation that over the long
16 term, that those range of buildings will be
17 expanded, but as for this round of standards,
18 this, we sort of selected the low hanging fruit,
19 so to speak.

20 MR. GOLDSTEIN: Second comment concerns
21 the indoor air quality issue. I'm glad that
22 you're taking a detailed look at this. I couldn't
23 help be struck, but be struck by one fundamental
24 mismatch here, and that is there was some concern
25 over whether 0.15 cfm per square foot is an

1 absolute minimum, is enough in a commercial
2 building.

3 In the residential buildings covered by
4 this standard the minimum is zero, and .15 cfm per
5 square foot is equivalent to over one air change
6 per hour, which is over three times what ASHRAE
7 requires, but could be ten times what an actual
8 house is going to have, a house where activities
9 like cooking, woodworking, shop assembly of models
10 with glue, all sorts of other toxic generation,
11 toxic generating activities are happening,
12 including cigarette smoking, which is allowed
13 inside residential buildings but nowhere else.

14 So it might seem that before we talk
15 about raising ventilation rates at a significant
16 cost in energy and everything else in commercial
17 buildings, we might require some mandatory
18 ventilation in residential buildings.

19 Second caution is, from NRDC's position,
20 at least, more is not necessarily better in terms
21 of ventilation in the commercial building, because
22 of the trade-offs with the external air pollution
23 that's caused by excessive energy use. If 1,000
24 parts per million of CO₂ is a health problem,
25 we've potentially got a really big problem on our

1 hands because global climate change is going to
2 give us 1,000 parts per million everywhere all the
3 time as an ambient level by about 2100, if we're
4 on the businesses' usual course.

5 Energy efficiency is about the only way
6 to get us off that course, and providing a good
7 example through Title 24, which is one of, if not
8 the most advanced commercial building standards in
9 the world, is very important in terms of its
10 impact on the kind of CO2 concentrations that you
11 can't do anything to avoid.

12 The problems, and I'm not an expert on
13 indoor air quality, but the problems in indoor air
14 quality, from what I've seen, depend far more on
15 keeping bad stuff out of buildings in the first
16 place, than trying to run a lot of air through
17 them and get them out once they're in. And that's
18 why the state was wise to ban cigarette smoking in
19 commercial buildings, and why we ought to be
20 paying attention to toxics being introduced to
21 buildings much more than trying to get them out.

22 Thank you.

23 MR. ALCORN: Thank you, David.

24 COMMISSIONER PERNELL: I have a
25 question. Mr. Goldstein has brought to my

1 attention the daylighting aspect, and my question
2 is how does that relate to schools, in terms of
3 the square footage and the high ceilings, and et
4 cetera, when we're talking about daylighting? And
5 is that allowed in portable classrooms?

6 MR. McHUGH: This standard would not
7 prohibit skylighting in schools, or these smaller
8 locations. But it's, what it's done is pick the
9 locations where skylighting is most cost
10 effective. So the, so, for instance, schools and
11 portables, skylights would not be prohibited; in
12 fact, would be allowed to make use of the historic
13 standard that allows up to five percent of the
14 roof area in skylights, which is quite adequate
15 for most occupancies.

16 COMMISSIONER PERNELL: All right. What
17 about SolaTubes? Is that prohibited?

18 MR. McHUGH: No. SolaTubes are not
19 prohibited.

20 MR. PENNINGTON: Well, at the last
21 workshop SolaTubes was saying that the sizing
22 criteria for skylights was going to be a problem
23 for them. Right?

24 MR. McHUGH: Right. And I've talked
25 with SolaTube. Their issue is this, that they,

1 their designs tend to use smaller amounts of
2 SolaTubes because they try to use a SolaTube as a,
3 as a task source. How the standard has been
4 written is that half of the area in the spaces, of
5 the complying space, or the spaces where you'd be
6 required to use skylights, are greater than 25,000
7 square feet, ceiling height's greater than 15 feet
8 for a single enclosed area. So you have a large
9 building that's broken up into a bunch of small
10 rooms, those would not be, those would not be
11 subject to the requirements. But these large
12 areas, typically warehouses and big box retail, it
13 would apply.

14 The SolaTube product, its primary market
15 is more for bringing light through a deep plan
16 into spaces that are typically lower than 15 feet,
17 so first off, in terms of their, the market that
18 they're serving is primarily spaces that aren't
19 covered by the particular requirements. But also,
20 how the requirements are written, that there be a
21 three percent skylight to floor ratio, so
22 essentially three percent of the roof area have
23 skylights for at least half of the space.

24 So if someone decided to make use of a
25 SolaTube for these tall areas, they could say that

1 what I'm doing is actually lighting half of the
2 space and actually use a lower, or a fraction of
3 skylights that is actually fairly comparable to
4 some of the designs we're doing currently.

5 MS. SHAPIRO: We're sort of concerned
6 about getting this addressed and resolved,
7 because, as you may know, we are promoting them
8 under the reduction program, and getting people to
9 put them into schools and into commercial
10 buildings and giving them incentives to do it.
11 And so what I have heard in the last workshop that
12 SolaTubes are having a problem with the standards,
13 getting -- they say we're having a problem, I got
14 very concerned, and I was assured that this would
15 be resolved.

16 I don't feel like it's resolved yet.
17 I'm, I'm not feeling resolved.

18 MR. PENNINGTON: Well, there's research
19 going on related to SolaTubes. That's ASHRAE
20 research, I believe?

21 MR. MCHUGH: There is some research
22 that's going on --

23 MR. PENNINGTON: Oh, I'm sorry, it's
24 NFRC.

25 MR. MCHUGH: NFRC Rating Council is

1 doing some research on SolaTubes, and have -- in
2 fact, I believe Jim Benney, next to me, can
3 probably describe that better than I can. There
4 has been some discussion about a research project,
5 I believe it's going to -- that there's supposed
6 to be a proposal in June to look at some of the
7 heat transfer aspects of what they call tubular
8 daylighting devices.

9 But I'd like to point out that in
10 general, the locations that, where SolaTubes are
11 being promoted are not the locations that are
12 being addressed in this code requirement, because
13 the code requirement is for places that are
14 warehouse and big box retail.

15 What's that?

16 MS. SHAPIRO: Or school gymnasiums.

17 MR. MCHUGH: Or a school gymnasium.

18 Again, in general, those occupancies have very
19 small plenum heights, if any plenum at all. And
20 so a SolaTube is really not necessarily the
21 appropriate -- that's not the appropriate
22 application for the SolaTube.

23 MS. SHAPIRO: Could we hear from Mr.
24 Benney about NFRC --

25 MR. BENNEY: Yes. We've been asked to

1 do ratings on those products, where you've
2 actually -- and we've developed, obviously we can
3 do U-factor testing. We're hoping to get solar
4 heat gain testing at an accredited laboratory very
5 soon so that we can get some heat gain ratings.
6 We will need the researches for determining heat
7 transfer mechanisms and for simulation models, for
8 modeling those products, so that we can get
9 visible transmittance numbers as well.

10 And I now the research project is going
11 to come up in June, and I believe you'll be giving
12 a talk on that. So we're working on it and hope
13 that we get that done soon.

14 MS. SHAPIRO: Thank you.

15 MR. ALCORN: Okay. Thank you for those
16 comments.

17 MR. JOHNSON: This is Jeff Johnson. Is
18 it all right to make a comment on the ventilation
19 issues?

20 MR. ALCORN? Sure.

21 MR. JOHNSON: Yeah, it's a brief
22 comment. I'll just give you the history. I guess
23 first of all, the solar did show us from five cfm
24 to a 15 cfm per person as the minimum weight, so
25 it tripled in 1991. In that tripling, you

1 remember the -- there were a number of agencies
2 involved in that, including industrial hygienists.
3 And the State of California decided they can
4 revise the proposed to actually leave them -- and
5 eventually base their standard on a different sort
6 of criteria. And the environmental accuracy that
7 was prepared for that, two things stood out pretty
8 strongly.

9 Number one is there was a pre-occupancy
10 purge, which assured that before occupancy there
11 would be some -- to make sure the space was
12 ventilated, source pollutants were flushed out,
13 and that if occupants came in they would have,
14 they would have adequate ventilation, well-
15 ventilated spaces to begin to operate in. I think
16 in particular with the case with demand controlled
17 ventilation, that would assure that as a room
18 ramped up in occupancy there would be adequate
19 area in that room to satisfy those occupants.

20 The second comment I wanted to make is I
21 think on the new issue of what I think the
22 Commission wanted, and the basis of the
23 ventilation requirement isn't the correct
24 standard. And that has to do with a statement in
25 there by the report, that states it can be

1 surmised that the present minimum air quality
2 problem is really a source dominated problem which
3 could be exacerbated by inadequate ventilation,
4 exacerbated by inadequate ventilation.

5 So the room, the combination of looking
6 at the sources on the ventilation, not just
7 ventilation there by itself, I think this is an
8 important unrelated basis of that, and I think
9 their use of demand control ventilation is
10 consistent with that, within that group. In
11 particular, that smokers have other -- from the
12 buildings, and a number of green buildings without
13 being brokered into using source pollutants, yet
14 they're still required to ventilate to those high
15 levels of ventilation, and dilution of pollutants
16 in those buildings.

17 COMMISSIONER PERNELL: All right. Thank
18 you. I think we have one more respondent.

19 MR. ALCORN: I, actually, I don't have
20 anyone left in the room here to provide comments.
21 Is there anyone, Jeff, do you have anything else
22 to add?

23 MR. JOHNSON: No, not at this time.
24 Thanks.

25 MR. ALCORN: Okay. Mark Hydeman?

1 MR. HYDEMAN: Yeah. One other thing I
2 wanted to add again to the record, a discussion on
3 demand control ventilation that I failed to note
4 earlier, when we were discussing that with
5 Deborah, who unfortunately is not here.

6 And that is that one benefit of having
7 CO2 sensors in a space is that they're also very
8 good diagnostic tools for what's happening with
9 your ventilation system. As we heard earlier from
10 a number of people, Steve Blanc and others,
11 economizers do fail, and we really don't have any
12 diagnostic systems in buildings right now that
13 tell you whether or not you're receiving as much
14 ventilation as you'd expect to receive.

15 Well, the fact is that a CO2 sensor can
16 tell you when you're getting below the minimum
17 kind of code required ventilation, whether it's a
18 control system failure or a physical failure of
19 part of the economizer, or it could be, you know,
20 based on losing a belt and having low air flow.
21 Whatever the cause, now you have a diagnostic
22 means of determining whether or not you're
23 receiving less air than you would intend to do in
24 that time.

25 So I think there's some benefits, as

1 well as some challenges in applying demand control
2 ventilation.

3 MR. ALCORN: Okay. Thank you for those
4 comments. I think it's about time, we're running
5 just exactly one hour behind schedule, so we're
6 going to go on ahead and shift gears into this
7 next section of non-residential lighting.

8 Right now ,I'd like to ask, is Jim Benya
9 on the line? Okay, Jim's not with us. What we're
10 going to do --

11 MS. SHAPIRO: Bryan, you mean Jim Benya,
12 our Jim Benya? He just talked.

13 MR. ALCORN: That's Jim Benney.

14 MS. SHAPIRO: Oh. Benney, okay. So you
15 want Jim Benya?

16 MR. ALCORN: Yeah. Jim Benya is working
17 with Charles to present -- okay. Actually, before
18 you get started, Charles, what we're going to do
19 is use a little bit of a different format here for
20 this non-residential issue. We're going to talk
21 about the indoor lighting requirements first, and
22 then have a question and answer period. And then
23 we'll shift to the outdoor lighting requirements
24 and have a question and answer period for that one
25 separately.

1 Jim Benya, are you on the line?

2 COMMISSIONER PERNELL: Can we go off the
3 record for two minutes? I don't want everybody to
4 leave, but two minutes off the record.

5 (Off the record.)

6 MR. ALCORN: We've decided to go on
7 ahead and actually reverse what I just said.
8 We're going to address the outdoor lighting issues
9 first, with a question and answer period to
10 follow, then the indoor lighting issues with
11 questions and answers to follow.

12 MS. SHAPIRO: Okay. So outdoor lighting
13 guys, do you hear this?

14 MR. ALCORN: CSA folks. Excuse me,
15 guys. I don't know if you heard my last comment
16 that we're going to go on ahead and do the outdoor
17 lighting issues first, with a question and answer
18 period, and then we're going to do the indoor
19 lighting sections, with question and answers to
20 follow.

21 Okay. We'll start off with Charles Eley
22 making the presentation.

23 MR. ELEY: Okay.

24 COMMISSIONER PERNELL: I know that we
25 have a number of representatives for the outdoor

1 lighting, so we do have, as a matter of
2 convenience, we have some chairs up front, so
3 you're welcome to come up at the table, join us at
4 the table.

5 (Inaudible asides.)

6 MR. ALCORN: Gentlemen, there are also a
7 couple of chairs to the far side of the lectern,
8 if you're looking for a microphone to speak into.

9 MR. ELEY: Are you ready, Bryan?

10 MR. ALCORN: Yes.

11 MR. ELEY: Okay. Sort of expecting Jim
12 Benya to be on the line to help me with this, but
13 I will --

14 MR. ALCORN: I think -- Jim, are you
15 here?

16 MR. BENYA: Jim's here.

17 MR. ELEY: Okay. Hi, Jim. We're going
18 to start with the presentation on outdoor
19 lighting, so you just make a contribution when you
20 feel it's appropriate.

21 Just a summary of the requirements.
22 This is really no change from the November draft.
23 The standard is, has actually been moved to
24 Section 147. I guess previously it was in 130-
25 something, 133. But substantively, it still

1 includes the same features, in that it does define
2 four outdoor lighting zones. That remains
3 unchanged.

4 There is a whole host of definitions
5 that have been added to deal with lighting issues.
6 Cutoff luminaires are required in some
7 applications for large lamps. And there's
8 specific lighting power allowances for hardscape
9 areas, landscape, building entrances, canopies,
10 outdoor sales areas, building facades, driveways
11 and pathways, as well as outdoor signs.

12 Unconditioned buildings has really not
13 changed from before. This is really just a new
14 line item in the, for parking garages, which were
15 previously unregulated by the standard.

16 For outdoor parking lot lighting,
17 there've been no significant changes since the,
18 since the November draft. These, the requirements
19 are presented here in Table, are in Table 147A of
20 the standard. The power allowance is on a per
21 square foot basis, and it varies by lighting zone.

22 There's actually two methods that are
23 offered for driveways, I guess. One is, the first
24 method is a per square foot method, and the other
25 is essentially a lineal foot method.

1 For building grounds lighting, this has
2 basically been merged into, and you use the same
3 power allowances for driveways, so the hardscaped
4 areas on the, in the buildings and grounds are
5 used, you use the parking lot numbers for that.
6 And the calculation methods for landscape lighting
7 have changed.

8 Moving on to outdoor entrance and
9 entrance canopies, there are really no significant
10 changes since the November draft on this, on these
11 lighting power allowances. Outdoor building
12 facades, again, no significant change since the
13 November draft.

14 Outdoor sales area. The change here is
15 that there's now an allowance for a service
16 station without a canopy, which was not there
17 before.

18 And for outdoor signs and billboards,
19 there have been several changes. The first one is
20 that the increased power allowances, the power
21 allowances have been increased for internally
22 illuminating signs. Internally illuminated signs
23 were previously not permitted in Lighting Zone 1;
24 now they are. And for double-sided internally
25 illuminated signs only, the lighting power

1 allowance is just based on the area of one side.
2 And there's been no change for externally
3 illuminated signs.

4 And outdoor public right-of-way lighting
5 is really not included in this standard, so we
6 won't talk about that today.

7 Jim, do you want to add anything to the
8 outdoor lighting part? We're starting with that
9 and then we're going to return to indoor lighting
10 later.

11 MR. BENYA: Yeah, I just wanted to make
12 a couple of -- that I don't think people
13 understand that they changed. The first thing
14 that we changed that made a difference was to
15 combine many of the hardscape element equipment,
16 that one of the beneficial effects was to reduce
17 the complications to build outdoor light
18 installation. And the similar areas turned out to
19 be something I really believe improved and
20 simplified the way we were back in November.

21 The second thing we did is we took some
22 comments that we received from --

23 MR. ELEY: I think his battery just gave
24 out.

25 MR. ALCORN: Looks like we lost Jim

1 Benya. He'll probably try to call back in.

2 MR. ELEY: Hopefully with a stronger
3 battery.

4 (Inaudible asides.)

5 MR. ALCORN: Perhaps we should wait for
6 a moment for him to call back in. Jim may be
7 having trouble with his cell phone.

8 So at this point, I think we can take,
9 we can start taking comments on the outdoor
10 lighting. And if we could start with Jeff Aran.

11 MR. ARAN: Good afternoon. My name is
12 Jeff Aran. I'm with the California Sign
13 Association. I wanted to say thank you on behalf
14 of the association to the staff, in particular to
15 Gary and Mazi, for giving us some considerable
16 time to review our concerns.

17 We've made a great deal of progress
18 toward revising the standards to reflect some real
19 world applications.

20 MR. BENYA: I got cut off.

21 MR. ALCORN: That's okay, Jim. We're
22 just sort of in the middle of hearing comments.
23 Could you go on ahead and finish up what you were
24 going to say, then we'll hear our comments.
25 Sorry, Jeff.

1 MR. BENYA: All right. You know,
2 actually I don't know where the phone cut me off,
3 so basically I'd say that, you know, the important
4 improvements we made in November included defining
5 hardscape areas, and then as far as equipment I
6 was saying that there's some -- I don't know if it
7 might have helped, but we pretty much determined
8 that there was one way to build an externally lit
9 illuminated sign, and we weren't able to achieve
10 all the things we would've liked to, in terms of
11 that we didn't find for Lighting Zones 1 and 2.
12 So it is from the architecture of signs that are
13 now made, but encouraging them to use sign
14 ballasts.

15 MR. ALCORN: Okay, Jim. Thanks very
16 much. We're having a difficult time, the signals
17 have sort of broken, and we're having a hard time
18 hearing, so I just wanted to let you know that.
19 We're going to go on ahead and enter into our
20 question and comment time here. So I'm sure that
21 you can hear fine, but when you go to make
22 comment, it's, I just want you to know that it's a
23 little hard for us to hear you.

24 Okay. Jeff Aran, thank you.

25 MR. ARAN: As I was saying, thank you

1 again to Mazi and Gary for giving us some
2 additional time to address a number of the
3 concerns that we have. There's a lot more,
4 though, that needs to be changed, we believe, in
5 terms of creating some alternatives in that one
6 sign does not fit all, and we'll be looking
7 forward to working further with the staff in
8 achieving some mutually satisfactory resolutions.

9 One of our major objections, though,
10 continues to be to the use of census zones or any
11 kind of zone as a means of determining lighting
12 power densities. We first believe that the
13 lighting zones are unrelated to any demonstrable
14 energy savings. Additionally, we believe it's
15 beyond the scope of Senate Bill 5x, the enabling
16 legislation. This is something, of course, that
17 we've addressed before, but we'd just like to
18 reiterate it.

19 There's no studies that we've seen, that
20 we're familiar with, we're not aware of any
21 studies that IESNA has done which substantiate the
22 use of zones based on census or any other
23 category.

24 They also are concerned that before the
25 data can be assembled into the regulation, the

1 testing, comprehensive testing needs to be done
2 across the board for a variety of different kinds
3 of signs, to make sure that what is eventually
4 achieved, if anything, is technologically feasible
5 and, in fact, energy efficient and cost effective.

6 I want to also reiterate, and perhaps
7 Gary and Mazi will add to this a little bit later,
8 just some clarifications that need to be approved
9 in the regulations that we talked about before, to
10 make sure that it's clear in the regs that
11 interior signage is not integrated by the section,
12 even though it seems like it's regulated, on the
13 one hand; on other pages, it seems like it's not,
14 to us. And there's also exceptions that have been
15 created for cold cathode, LED, and neon lighting.
16 They're set forth in Section 147.

17 I guess the other thing that we want to
18 say, just as a matter of principle, the lighting
19 regulations, the outdoor lighting regulations
20 appear to be driven by a desire to not only
21 promote energy efficiency, but to control and
22 serve the agenda of the Dark Sky Association.
23 We've commented on this before, and we still feel
24 that in many ways, the regulations still do that.
25 The regulations, you just can't use energy

1 efficiency as a platform for their particular
2 agenda, or any other agenda that's outside the
3 scope of the enabling legislation.

4 That concludes my remarks. Thank you.

5 MR. ALCORN: Thank you, Jeff.

6 Okay. Can we hear from Kozell Boren.
7 You're going to need to speak into both
8 microphones.

9 MR. BOREN: Okay. Commissioner Pernell
10 and Commissioner Rosenfeld, and CEC staff. My
11 name is Kozell Boren, and we're a 45-year old
12 company located in Torrance, California, small
13 business that's engaged in manufacturing and
14 selling of outdoor electric signs. I'm the
15 Chairman and CEO of that company, called
16 Signtronix.

17 I spoke at the last workshop, and after
18 the workshop Mr. Flamm called and said that he
19 heard that I would be willing to furnish a couple
20 of signs for the Berkeley Livermore Lab to do some
21 testing. And I was very eager to help, and agreed
22 to send a couple of signs up. In fact, I told him
23 I'd do it the next week.

24 And, however, after more careful
25 consideration of that decision, I realized that

1 the sign that we manufacture is one particular
2 type of cabinet sign, and there are so many
3 different cabinet signs that I felt like that if
4 just this one sign were tested, that I would be
5 doing a disservice to our industry. There are
6 thousands of different ways to build a cabinet
7 sign, and things that we consider are
8 architecture, speed of traffic, type of
9 installation, whether it's a pylon sign, a pole
10 sign, a projective sign, monument sign, wall sign,
11 theme sign, and there's many, many more.

12 And recently the staff of CEC visited a
13 local sign company, and I compliment you for going
14 there, and I hope that you'll visit other places.
15 But I would like to just mention, as a result of
16 that visit, a sign was observed on the --
17 somewhere in the building, and so forth, that was
18 an eight by twelve foot sign, cabinet sign, that
19 was designed to -- there was a pole that went
20 through the can, through the middle of it, and
21 because, in order to accommodate the pole, the
22 sign was 35 inches thick. And I would guess that
23 maybe one in 500 signs in Sacramento is 35 inches
24 thick.

25 That's just, what I'm saying, is one of many

1 thousands of types of signs.

2 Our company, as I said, is a 45-year old
3 company, and we continuously refine the design and
4 manufacturing techniques, and the functionality of
5 our signs. I brought a sample of an extrusion
6 that we use exclusively in our sign. I can break
7 it apart there, but I won't do it since we're not
8 up close. This particular sign is about nine
9 inches wide, or nine and a half, which is
10 approaching the maximum width that you can extrude
11 an aluminum sign. And then we back inform faces
12 and insert them in the sign, and when it's all
13 completed the sign is eleven and three-quarter
14 inches thick.

15 We have 25 different models of this
16 sign, and our company is the largest supplier of
17 signage to the small businesses, the mom and pop
18 businesses in the USA. We build about 35 signs a
19 day, 300 families, 300 employees.

20 To explain some of the complexities,
21 Gary, for like our company, we have about \$200,000
22 invested in engineering on our 25 signs. After
23 they're totally engineered and we know what we're
24 going to be building, we invested an additional
25 \$550,000 in Class A tooling to build the signs

1 with. They're semi-mass produced. Also, we built
2 12 custom built back informers. They're the
3 fastest in the world, and these, the tooling that
4 we have spent, the \$200,000 in engineering,
5 \$550,000 in hard tooling, and the 12 back
6 informers that we have to develop these 25
7 different models, would all be obsolete; none of
8 our equipment, none of this engineering, and none
9 of this would work if the standards that you are
10 working on were adopted, the regs that you have.

11 And I guess the reason that I'm
12 presenting this is to say that I feel that
13 comprehensive testing of cabinet signs industry-
14 wide, in all of their applications, should be done
15 before adopting these limiting regulations.

16 And I would like to say just one more
17 thing, I have about a minute to go here. Dr.
18 Rosenfeld, I've read more than 100 pages of your
19 material and as a California citizen, I commend
20 you for the brilliant work you've done. I think
21 your electronic demand metering installed at no
22 apparent cost to the user was a great piece of
23 work.

24 In looking through your material, I saw
25 your chart showing the time peak energy uses, I

1 saw an example of the kilowatt demand by time of
2 day, and the peak demand was between 2:00 and 4:00
3 p.m. It appears to me to be that way. Signs do
4 not come online until about 6:00 p.m., or later.
5 And by that time we're down to 20 percent of
6 capacity, or demand. And, frankly, I just don't
7 understand why we're regulating, why we're saying
8 that -- why we're focusing on saving energy at
9 such a low priority time, when it's not affecting
10 peak, not affecting demand, and just as a private
11 business person, if I had a crisis and I
12 approached it like this, I would question whether
13 I'm really on the right track or not.

14 And the last time that I gave a
15 presentation here I mentioned that one of my
16 mentors continuously told me that Koze, it's never
17 too late to turn back when you're on the wrong
18 road. And I just think that regulating signage
19 which burns at night, is using electricity that's
20 being supplied but not consumed, is being sold, I
21 don't see the rationale in saying that we need to
22 save energy when we're at 20 percent capacity.
23 That just continues to befuddle me.

24 Also, Dr. Rosenfeld, the last time that
25 I spoke you and I and Mr. Benya got into a

1 conversation about whether there had been any
2 testing, any modeling, and the answer was no, we
3 haven't done any testing or built any models. And
4 I think that we really truly need comprehensive
5 testing across the board for the entire industry.
6 We're regulating not only an appliance that
7 generates electricity.

8 And I would say to you that looking
9 around here, the average sign that we sell would
10 use less electricity than one of these squares up
11 here. The average sign that we sell is 32 square
12 feet. It's on, it's 11 inches, 11 and three-
13 quarter inches thick, 12 inch center lamps, and
14 the average sign uses the equivalent of three
15 four-foot interior light fixtures with full lamps.
16 P8 lighting, with electronic ballasts.

17 So we're regulating an industry where
18 less than one-tenth of one percent of the power
19 consumed, I would say it would be much, much lower
20 than that, the power consumed relative to the
21 total business.

22 I thank you for hearing my thoughts and
23 feelings again. And Gary, I'm truly sorry that I
24 agreed to send you sample signage, but it was
25 just, I didn't feel it would be fair for me to

1 send our sign, which is just one of 100 signs, or
2 thousands of ways to build them. We're an
3 industry of artisans. People that own businesses
4 have freedom of speech, freedom of expression, and
5 the -- what you're proposing would make every
6 product that we have obsolete.

7 But I do apologize for not sending it,
8 Gary. You know, I think, from our conversation,
9 that I want to help, but it's too limiting for me
10 to send my product when I'm part of a large
11 industry that has many, many products.

12 So I thank you for hearing my thoughts
13 and feelings, and we'll get through this.

14 MR. ALCORN: Okay. Thank you, Mr.
15 Boren. I think there are a couple of commenter
16 questions. Mazi.

17 COMMISSIONER PERNELL: I have a
18 question, if I may pull rank here for a minute.

19 First of all, let me say thank you for
20 being here. It is refreshing to see a person in
21 the industry, in the business, who is providing
22 some economic benefit not just for your employees,
23 but also for your community.

24 The question I have, though, is how is
25 these regulations going to put you out of

1 business? I mean, what is it about them that's
2 going to eliminate your business investment and
3 your business practices?

4 MR. BOREN: Well, that's a good
5 question, and I'm certainly glad that you asked.
6 I didn't say that it would put us out of business,
7 but then you also added there that it would render
8 the investment that I've made unusable.

9 COMMISSIONER PERNELL: Well, yeah, I'm
10 asking that question.

11 MR. BOREN: Yes, okay. If, you know,
12 when we, when we design and build a sign, a
13 prototype, we go through, we spend thousands of
14 dollars arriving at a lot of things that have to
15 be right. But one of the things that has to be
16 right is that the face of the sign has to be
17 evenly lighted.

18 Now, if I put, if I take all this
19 investment that I have, change nothing, and just,
20 and conform to your 11 watt, the face of the sign
21 would resemble a zebra. Not black and white, but
22 gray and white, striped. And then the copy would
23 be imposed over that. And if I made that up and
24 showed it to my customer, they'd say god, I
25 wouldn't have that in front of my business for

1 anything.

2 So by going to 14 inch centers, the
3 light would simply not be even. And I have all
4 this engineering developed in an extrusion. It's
5 very complex. I'm going to leave it with you
6 folks, and you can throw it away, but -- when
7 you're through with it, but I'd like you to look
8 at it. We're very proud of it.

9 We, like I said, we build a sign every
10 35 minutes. And no doubt every 35 minutes, but
11 about every 12 minutes. And -- in our factory.
12 And all of this tooling and all this, if I had to
13 conform to that, and I'll just summarize, my sign
14 face would look like a zebra, and then you've got
15 copy on top of that.

16 COMMISSIONER PERNELL: So the issue is,
17 if I understand you correctly, you have to have an
18 even lit sign, rather than, you know, dark in some
19 spots and, and not others.

20 MR. BOREN: Yes.

21 COMMISSIONER PERNELL: The even, even
22 lit sign is what customers want to buy and what
23 people want to see.

24 MR. BOREN: It's backlighting copy.

25 COMMISSIONER PERNELL: Okay. And then

1 our proposal of 14 inches on center wouldn't allow
2 that to happen, is what you're --

3 MR. BOREN: That works on a 35 inch
4 sign. And that's what I'm saying, Commissioner
5 Pernell. There's, there are just hundreds of
6 different applications where these constraints,
7 you just can't have one -- getting everything.
8 And that's why I'm recommending very comprehensive
9 testing, which I think we kind of started last
10 session with Dr. Rosenfeld.

11 COMMISSIONER PERNELL: Okay. Did staff
12 want to respond to the 14 inch on center?

13 MR. ALCORN: I think Mazi may have a
14 reaction.

15 MR. SHIRAKH: Koze, part of the reason
16 why we wanted you to provide a sign was to exactly
17 answer these type of questions. And it would have
18 gone a long way to address some of these issues.

19 May I ask, what is your on center
20 placing for this sign?

21 MR. BOREN: Well, a double-face sign
22 would be 11 and three-quarter inches.

23 MR. ELEY: Is that, that's the spacing
24 of the lamps?

25 MR. BOREN: In a single-face --

1 MR. ELEY: The lamp spacing, you're
2 talking about. Because that was also the depth of
3 your sign, of the --

4 MR. BOREN: If you take, you know, if
5 you can do the math there, the lamp is in the
6 center. And the -- let's call it 12 inches. And
7 the thickness of the sign is 12 inches. But, see,
8 again, that's only one sign.

9 COMMISSIONER PERNELL: Oh, I understand
10 that about all of the different signs, which is,
11 you know, one of the suggestions from the industry
12 is that we go around and we test everything first.
13 Well, that can be problematic, just like you're
14 saying it's problematic where one size doesn't fit
15 all. But I'm interested in how, if it's, you
16 know, if we're recommending 14 inch on center and
17 yours is 11 and a half, to make that work, I mean,
18 that's the kind of --

19 MR. BOREN: We're on 12 inch centers.
20 Maybe I didn't understand your question.

21 COMMISSIONER PERNELL: Well --

22 MR. BOREN: Our sign is 11 and three-
23 quarter inches thick.

24 COMMISSIONER PERNELL: Right.

25 MR. BOREN: But our lamps are on 12 inch

1 centers. All 25 of our products are on 12 inch
2 centers. I'm sorry.

3 MR. SHIRAKH: Koze, may I -- on the
4 single face sign, what is the spacing of lamps?

5 MR. BOREN: The lamp, we use the same
6 extrusion for a single face sign. We simply would
7 insert a sheet metal back in there instead of a
8 plastic face. So we're, we're focused on the one
9 side.

10 MR. SHIRAKH: Okay. Again, that's why
11 we were asking for a sample sign, to avoid this
12 type of confusion. What we did when we toured
13 Pacific Neon, we basically said we're going to
14 take the same sign, don't change anything other
15 than run it on electronic ballast, instead of
16 magnetic. That's the only requirement that we
17 have. The 11 watts per square foot was calculated
18 based on the same geometry spacing and everything
19 they have changing from magnetic to electronic
20 ballast. And actually, having -- adding some slop
21 to it, you know, some fudge factor. So it may
22 actually be enough for you to get by with this 12
23 inches. Have you looked at that to see if you can
24 manufacture the sign with 11 watts per square
25 foot? Have you done any type of calculations

1 based on -- and it's based on two 12 lamps, by the
2 way.

3 MR. BOREN: I, I have spent thousands of
4 hours moving lights around inside of signs to get
5 even lighting. And without -- I had, no, I
6 haven't done it since you mentioned that. But I
7 can guarantee you that if you will take a sign
8 that is 12 inches deep and put a T12 lamp in the
9 center of it, and put them on 14 inch centers --

10 MR. SHIRAKH: I'm not -- I'm not --

11 MR. BOREN: -- that resemble a zebra.

12 MR. SHIRAKH: I'm not asking you to move
13 it to 14. What I'm --

14 MR. BOREN: I see.

15 MR. SHIRAKH: -- asking is could you
16 still construct this sign at 12 inch center, given
17 11 watts per square foot? Have you tried to --

18 MR. BOREN: No. Because, see, the only
19 way you can achieve that is to go to 14 inch
20 centers.

21 MR. SHIRAKH: Not necessarily.

22 COMMISSIONER ROSENFELD: That's what you
23 say, but that's not what Mazi says.

24 MR. SHIRAKH: Not necessarily, because
25 we added a fudge factor to our number --

1 MR. BOREN: Well, no, I -- you're right,
2 see, I could jump \$200,000 into the engineering
3 and make this extrusion wider.

4 MR. SHIRAKH: That's not what I'm
5 saying, my friend. What I'm saying is, it may be
6 possible for you to produce the exact same sign at
7 12 inch center. With electronic ballast, it may
8 be possible for you to do it at 11 watts per
9 square foot. Is it possible --

10 MR. BOREN: Well, that's another reason
11 why I believe that comprehensive testing is
12 needed. But Mazi, I do not believe you could do
13 that, and I've spent 45 years designing and
14 building and refining signage. I really don't.

15 MR. SHIRAKH: And there's a
16 representative from a utility company. I'll let
17 him speak for the utility demand. I just wanted
18 to add one point, that summer at 10:00 p.m., the
19 electrical demand in California is in excess of
20 30,000 megawatts. The on peak demand is about
21 45,000, so it's far more than 20 percent that you
22 mentioned. There is a very significant and, you
23 know, it all comes from coal, gas, hydro, nuclear
24 both in and out of state. So there is a
25 significant electrical demand even summer off

1 peak.

2 MR. BOREN: Well, that's what happens
3 when an amateur tries to analyze professional
4 presentations. But I, I saw where Dr. Rosenfeld
5 had taken a particular business, it's in the Power
6 Point presentation, and it showed the demand at
7 the time of day, and I think it peaked around 2:00
8 to 4:00. That's the way I interpreted it. It may
9 be wrong.

10 MR. SHIRAKH: That's the peak demand --
11 anyway --

12 MR. PENNINGTON: Well, actually, the
13 peak is later than that, in general. The
14 coincident peak of residential and commercial is
15 more like 6:00 o'clock, or something like that.

16 MR. BOREN: And wouldn't that also be in
17 the summertime?

18 MR. PENNINGTON: Yeah. But --

19 MR. BOREN: And in the summertime, it
20 doesn't get dark until 8:00 or 9:00 o'clock. So
21 signage doesn't come on until later.

22 MR. ELEY: I wanted to just get one
23 point of clarification, Mr. Boren. Did you, did I
24 hear you say that you use electronic ballasts in
25 T8 lamps in your signs now?

1 MR. BOREN: No, sir.

2 MR. ELEY: Oh. I thought I heard that.

3 MR. BOREN: We never use electronic in
4 T8.

5 MR. ELEY: Okay.

6 MR. SHIRAKH: You use T12, I take it.

7 Do you use magnetic or electronic ballasts?

8 MR. BOREN: We use T12s, and we are not
9 at this time using electronic.

10 MR. SHIRAKH: That's the only change we
11 realistically, we're recommending, is just using
12 electronic ballast, and we're not --

13 MR. BOREN: You know, the feedback that
14 I get from our suppliers is Koze, don't go there
15 yet. We're the largest users of ballast in the
16 State of California, in the sign industry. And
17 our supplier is saying to us, Koze, don't go there
18 yet.

19 COMMISSIONER PERNELL: So they're --
20 they can't supply electronic ballasts, is that
21 what your suppliers are saying?

22 MR. BOREN: No, I'm not -- Commissioner
23 Pernell, I'm not saying they can't supply it. I'm
24 just saying that my supplier says don't go there
25 yet.

1 COMMISSIONER ROSENFELD: Look, Koze,
2 this is pretty confusing here. You talk all about
3 striped, zebra effects.

4 MR. BOREN: Yes, sir.

5 COMMISSIONER ROSENFELD: Well, no one
6 has suggested changing the spacing, so that, that
7 puts you in a bad argument or position, in the
8 first place. And then your whole argument for why
9 you shouldn't try T8s with electronic ballasts,
10 which have been around, I don't know what, a dozen
11 years, is because some salesman says you don't go
12 there. Do you expect the Energy Commission to
13 stop trying to get an agreement here just because
14 some salesman tells you don't go there?

15 MR. BOREN: Well, I'm trying to clarify
16 that. We can get magnetic ballasts for T12
17 lighting, and I believe that there's been some
18 federal activity requiring magnetic ballasts for
19 T12 lighting in 2005.

20 MR. ELEY: Electronic --

21 MR. BOREN: I've also -- electronic
22 ballasts. I understand that electronic ballasts,
23 when used with a T12 lamp, will reduce the cost,
24 or the electricity by about 30 percent. I have no
25 problem going to T12 magnetic ballasts. And Dr.

1 Rosenfeld --

2 COMMISSIONER ROSENFELD: Electronic?
3 Electronic ballasts?

4 MS. SHAPIRO: Electronic ballasts.

5 MR. BOREN: Electronic ballasts. And
6 Dr. Rosenfeld, it was not just a salesman. It was
7 the owner of one of the most prestigious -- I use
8 the best ballasts that I can buy -- it was the
9 owner that said to me, Koze, don't go there yet.
10 Maybe in a year or two that could be done. But
11 the T8 lamp, the T8 technology, is not designed
12 for outdoor use.

13 MR. FLAMM: I'd just like to clarify.
14 We're not, we're not promoting the models based on
15 T8 lamps. We are basing the models on T12 high
16 output lamps with electronic ballasts.

17 MR. BOREN: And I understand that, and I
18 don't know how to explain, but I could show you if
19 you came to our factory. And I'd be very happy to
20 give you a tour of our place, to show you the
21 engineering and the tooling, and the 12 vacuum
22 plumbers that are the fastest in the world. And I
23 can build a sign and put in 14 inch centers, and
24 it's going to be zebra striped.

25 MR. FLAMM: We're not asking you to go

1 14 inch centers.

2 MR. ELEY: I think the point here is if
3 you, if you just substitute T12 lamps with
4 electronic ballasts, you don't have to change
5 anything else in your product.

6 MR. BOREN: Well, actually, if you
7 don't --

8 MR. ELEY: And it will comply with the
9 proposed standard.

10 MR. BOREN: If you don't mind, I'm not
11 really qualified to discuss -- we have other
12 people in our group that I have the highest
13 respect for, from a technical standpoint. I'm
14 just telling you what a sign guy that's been
15 building signs for 45 years, and I try to build
16 the best sign I can, I'm telling you with all the
17 investment that I have made, I believe that all of
18 it would be obsolete and unusable.

19 COMMISSIONER PERNELL: Well, I don't --
20 just, just one point, because I don't want you to
21 feel that you're being jumped on here by our
22 professors around the table. And I do admire you
23 coming in, and as a, you know, as a businessman
24 who don't -- I certainly don't understand all of
25 the technical nuances of sign making, and I'm not

1 here trying to profess that I do. But I don't
2 want you to feel like we're badgering you in any
3 way. We're --

4 MR. BOREN: I don't really feel that
5 way.

6 COMMISSIONER PERNELL: I want to be sure
7 that we're not, in these regulations, trying to
8 run somebody out of business. That's, that was my
9 initial question. I do have a question for staff
10 or anyone who can answer. Is it, is the federal
11 government moving in the direction of electronic
12 ballasts? Is that something I heard?

13 MR. ELEY: Yes. He's correct. There
14 will be a federal standard essentially prohibiting
15 magnetic ballasts, and you don't want to take --

16 MR. AYERS: For G12 lamps and --

17 COMMISSIONER PERNELL: Can you come up
18 and share that with us at the podium, please? Or
19 the table, wherever a mic is.

20 MR. AYERS: Here's one. My name is
21 Larry Ayers, I'm with Eley Associates.

22 Yes, there is a federal regulation that
23 will ban most magnetic ballasts with T12 lamps in
24 the year 2005. The exception will be ballasts
25 with, I believe it's short leads, to replace

1 existing ballasts. But the objective is to
2 eliminate them for T12 lamps.

3 And part of the rationale is that almost
4 all T8 lamps have electronic ballasts anyway, so
5 they didn't need to regulate it for T8 lamps.

6 MR. BOREN: I might also add,
7 Commissioner Pernell, that I have heard, I haven't
8 personally confirmed, but I have heard that signs
9 are exempt from that federal law in 2005.

10 COMMISSIONER PERNELL: Do we have any
11 information on that?

12 MR. AYERS: I, I don't recall that.
13 It's possible. I don't recall the exact, what the
14 regulations state exactly.

15 MR. BOREN: I heard it from a couple of
16 sources, and we can certainly verify that.

17 COMMISSIONER PERNELL: Yeah. Well, I
18 think we can, can you check on that and get some
19 information to the committee, please. Get us on
20 what the federal regulation says about lighting
21 and electronic ballasts.

22 MR. BOREN: Commissioner Pernell, one
23 other point about what you mentioned about putting
24 us out of business. I'm not saying we're going to
25 go out of business. One of the mandates in 5x is

1 that it be cost effective. And I don't know what
2 you call cost effective, how deep you're going to
3 go. If companies like myself have to retool, the
4 expense, there's all kinds of trailing expenses
5 that you guys would be layering on this if you go
6 to zones, and all of that, that would create, in
7 my opinion, great hardships out there for small
8 business. Certainly mine.

9 COMMISSIONER PERNELL: And that is, our
10 intent is not to -- and I understand that you
11 won't be, you know, fold up and leave right away,
12 but we are trying not to put any undue hardship on
13 anyone in the state, for that matter. So, but
14 again, we have a mandate to do something, and we
15 have to do that. So I hope you understand that
16 there are both sides to this issue. Okay.

17 MR. ALCORN: Two more comments, Mazi and
18 Gary.

19 MR. SHIRAKH: Again, the only thing we
20 tried to, or we're hoping to accomplish, was to
21 encourage the industry to use electronic ballasts
22 with T12s, rather than magnetic. That's the only
23 thing we considered. And, you know, I committed
24 to Jeff Aran and to you that we'll work with you,
25 and if you really think that this is going to

1 cause a hardship, you know, we'll look at the
2 evidence. And we'll work with you.

3 MR. BOREN: Well, I would invite you
4 folks to come and visit our plant. You know, it
5 could be a one-day, two-hour visit. And you would
6 really see a lot.

7 MR. SHIRAKH: Where is your plant?

8 MR. BOREN: Torrance, California. It's
9 only 20 minutes from LAX.

10 MR. FLAMM: I'm going to be down there
11 in a couple of weeks for a couple of days, and I
12 would like to take you up on that.

13 MR. BOREN: Great. Love to host you.

14 MR. FLAMM: The question I wanted to
15 ask, is the 11 watts a square foot, perhaps that's
16 not the right number to land on. Twelve watts a
17 square foot, would that, would that allow you to
18 go the same geometries that you're currently
19 using, and use the electronic ballast in T12 high
20 output lamp?

21 MR. BOREN: Mr. Flamm, I do not know of
22 any way to build our product -- we've already
23 optimized that. We cannot, if we move the lamps
24 further apart, what we get is a graying, a bright
25 spot --

1 MR. FLAMM: I'm not asking -- no, no
2 changing on the geometry of the lamps at all.
3 Leaving your geometry of your lamp spacing, your
4 cabinet spacing, everything the same, but using an
5 electronic ballast. Would 12 watts get that job
6 done?

7 MR. BOREN: Our signs with T12 lamps
8 produce 14 watts per square foot.

9 MR. FLAMM: And that's with the magnetic
10 ballast.

11 MR. BOREN: And that's, that's with a
12 magnetic ballast.

13 MR. SHIRAKH: That's what we're trying
14 to encourage. And fortunately, your industry is
15 already doing that.

16 MR. ELEY: If you go to electronic
17 ballast, you comply. Don't, don't change anything
18 else.

19 COMMISSIONER PERNELL: All right. What
20 I'd like to do, sir, if you'd, you know, it's
21 difficult to sit and make a decision yes or no.
22 You can always get back to us, or get back to the
23 committee, or if you want, have anything else to
24 say that you want to put in writing, you're
25 welcome to do so.

1 But we do have a lot of other people
2 around the table.

3 MR. BOREN: Sure.

4 COMMISSIONER PERNELL: I want to give
5 equal time to everyone concerned. And, again, I
6 appreciate your being here, and bringing -- and I
7 understand that's a frame, part of a frame of a
8 sign.

9 MR. BOREN: Yes. We have 25 different
10 shapes, and there's, we use two different
11 extrusions, and this is designed and tooled up,
12 hard tooling --

13 MR. ALCORN: Okay.

14 MR. BOREN: -- \$550,000 worth of
15 tooling.

16 MR. ALCORN: Okay. Thank you, Mr.
17 Boren.

18 Bob Garcia, did you want to add any --

19 MR. GARCIA: Thank you, yes. Bob
20 Garcia. I'm an attorney, I represent businesses,
21 including Mr. Boren, and trade associations before
22 the legislature and state agencies.

23 I was at your November workshop and just
24 kind of sat as an observer, and Koze and I had
25 some conversations, and he said Bob, would you be

1 willing to work on this project with us. And I
2 said yes, Koze, with this stipulation. You have
3 to recognize and accept that SB 5x is the law. It
4 was passed by the legislature. And Koze said
5 that's fine, but I want you to analyze 5x and give
6 me some advice and guidance on what the parameters
7 are, and how 5x impacts my business and what the
8 relationship is between what the Energy Commission
9 is doing in its pre-noticed workshop format and
10 the Administrative Procedures Act.

11 And I said Koze, that's fine. I said,
12 my basic view is doesn't everybody win if the sign
13 industry could achieve energy savings in a manner
14 suggested by 5x, that are cost effective and
15 technologically feasible, and is mindful of the
16 commercial free speech case law that overlays
17 signage in this country. I think everybody wins
18 under that scenario.

19 So that's my frame of reference. I
20 think if this is done properly, it can be a huge
21 benefit for everybody. And I hope to be before
22 you soon and tell you that I think you've got a
23 work product that accomplishes what I've just
24 outlined. Unfortunately, I can't do that today.

25 MR. ALCORN: Could you take that

1 extrusion down off the table? I can't see.

2 MR. GARCIA: And there's a couple of
3 things, and I'll be very brief because a couple of
4 the gentlemen who want to speak after me have to
5 catch planes. But just a footnote to Mr. Aran's
6 comment. One of the things that those of us who
7 have worked in the legislative process and the
8 regulatory arena really honor and abide by are the
9 rules of engagement, the rules that we all need to
10 follow. That's articulated in SB 5x, and it's
11 articulated in the Administrative Procedures Act.
12 I've been doing this a long time, I think I have a
13 very strong reputation for honesty and integrity.

14 I find a couple of things in the
15 direction of these draft regs that trouble me,
16 frankly. And in that regard, in terms of being
17 outside or deviating from proper rules and
18 procedure and how we all like to do things.

19 The first one is the question Mr. Aran
20 talked about, and that is lighting zones. We
21 hired a commercial service, a law firm, who is
22 used frequently in the capital area, to scour the
23 record of legislative enactments. We have done
24 that. We have found not one mention of lighting
25 zones, glare, light pollution, in any verbal or

1 written document associated with the legislative
2 record around SB 5x.

3 So it is my opinion, as an attorney
4 who's been doing this for many, many years, worked
5 on dozens of regs, that that is outside of the
6 parameters of what the legislature authorized you
7 to do in adopting energy efficiency standards for
8 outdoor lighting. I respect your right to
9 disagree with that, but that is my evaluation of
10 the record.

11 The other, two other issues, very
12 briefly. And this is one I think is more for my
13 edification than anything else. When I -- I'm one
14 of these anal lawyers that actually reads all this
15 stuff -- when I was reading 5x, and when you read
16 page 5 of the enacted version of 5x, in section
17 425042.5, it says, the Commission shall include
18 both indoor and outdoor lighting devices as
19 appliances to be considered in prescribing
20 standards pursuant to paragraph 1, subdivision C,
21 of Section 25402.

22 Okay. A very very specific reference to
23 your code section 25402, the lead-in of which is,
24 reads, the Commission shall, after one or more
25 public hearings, do all of the following in order

1 to reduce the wasteful, uneconomic, inefficient,
2 or unnecessary consumption of energy. Subpart A,
3 a discrete part, refers to building design and
4 construction standards. Subpart B, a discrete
5 part, refers to new residential and new non-
6 residential buildings. The subpart referenced in
7 5x is C1. You all know that to be your discrete
8 appliance sections.

9 So my question is this, and maybe I'm
10 missing something. I don't understand, if I have
11 this correct, when that is so clear to me, that
12 you're appending this proceeding to an appliance,
13 to a building standard Title 24 proceeding, as
14 opposed to a Title 20 appliance standard. And,
15 you know, again, I read everything.

16 Reading the transcript from the March
17 27th hearing, and I don't mean this in any
18 disrespect, Mr. Pennington, but there's an
19 exchange between a consultant, Heschong, and Mr.
20 Fernstrom, and then it comes to you. And Mr.
21 Pennington says, a variant on at least this
22 question. I think if these are manufactured
23 devices, which they are, rather than cycle
24 devices, it would be more plausible to pursue a
25 Title 20 change.

1 So I'm just a little confused about why
2 we're doing building standards, Title 24, when to
3 me, if you read the law, it's really pretty clear
4 that you should be doing appliances.

5 MR. PENNINGTON: I think we should have
6 a separate conversation.

7 MR. GARCIA: Yeah. Yeah. Maybe I'm --

8 MR. PENNINGTON: I have the law --

9 MR. GARCIA: -- just confused here.

10 MR. PENNINGTON: I have the law here. I
11 think you have an obsolete version of the law.

12 MR. GARCIA: I don't think so.

13 MR. PENNINGTON: I have the enacted law
14 here, and it doesn't say appliances anywhere.

15 Related to my comment way back when, at
16 that workshop, Mr. Fernstrom was making a
17 presentation related to channel signs, and
18 adopting requirements related to channel signs.
19 And it occurred to me at the point that he was
20 talking about that, that it might be more
21 appropriate to have channel signs regulated
22 through the appliance standards. And it doesn't,
23 that comment was not sort of this broad comment
24 related to all signs. It was to the particular
25 configuration of channel signs. He brought in

1 some demos, and we were talking about just that
2 particular thing.

3 So I think you took my comments out of
4 context.

5 MR. GARCIA: I, I just read the record,
6 the transcript.

7 My final comment, and I really wasn't
8 going to raise this. Until the gentleman
9 mentioned that there is an imminent federal
10 regulation that I've heard a little bit about,
11 that's supposed to take effect April 1st of '05, I
12 understand, there is another provision in the
13 Administrative Procedures Act that basically
14 disallows regulations on a non-duplication ground.
15 And let me just read you what the ATA rulemaking
16 handbook says. "Non-duplication means a
17 regulation that does not serve the same purpose as
18 a state or federal statute or other regulation."

19 So I think we need to look at that. So
20 if the federal reg, as I understand it, is
21 essentially trying to do what you're trying to do
22 here, and that's going to take effect April the
23 1st of '05, I think there's a non-duplication
24 issue now. But we can talk more about that.

25 I appreciate the time.

1 COMMISSIONER PERNELL: Mr. Garcia, how
2 are you doing?

3 MR. GARCIA: Commissioner Pernell, good
4 to see you.

5 COMMISSIONER PERNELL: It's good to see
6 you, as well.

7 You mentioned 5x, and I think that it
8 was in the context of, you know, the only thing
9 was in 5x was the outdoor lighting provisions. I
10 mean, 5x has a lot in it. Is that correct?

11 MR. GARCIA: Yes, it is.

12 COMMISSIONER PERNELL: And so you read
13 the whole bill, I'm assuming.

14 MR. GARCIA: Many times.

15 COMMISSIONER PERNELL: So, I mean, just
16 to put this in context, the provision that we're
17 talking about here was only one paragraph of 5x,
18 or one section.

19 MR. GARCIA: Right.

20 COMMISSIONER PERNELL: Right. So 5x was
21 a big, humongous bill that was passed by the
22 legislature, had the Commission doing a number of
23 things, including trying to lower peak and across
24 the board energy reductions, and all kind of
25 stuff.

1 MR. GARCIA: Uh-huh.

2 COMMISSIONER PERNELL: Right. Now, you
3 talked about -- and I'm not an attorney, so I'm
4 not in a position to debate this with you -- but
5 you talked about 5x referencing a number of codes
6 sections.

7 MR. GARCIA: Right.

8 COMMISSIONER PERNELL: The one that I'm
9 focusing on is 25402, which is our building
10 standards. Correct?

11 MR. GARCIA: Uh-huh.

12 COMMISSIONER PERNELL: And within that,
13 it also reference the, the section about appliance
14 standards that you referenced. So, now, how can
15 you conclude that because it referenced the
16 building standards and the appliance standards,
17 that it only applies to the appliance standards?

18 MR. GARCIA: Because the reference --
19 and remember, there's a basic rule of statutory
20 construction that the specific governs over the
21 general. So the legislature must have intended
22 for you to treat these as appliances, and to
23 follow the provisions of appliances, or they
24 wouldn't have used such a specific reference to a
25 specific subpart of a code section.

1 MR. PENNINGTON: So what section are you
2 reading?

3 MR. GARCIA: I'm reading, if you look at
4 the enacted version of Chapter 5, and I don't want
5 to bog down, maybe we can talk about this, but I,
6 I'm just --

7 COMMISSIONER PERNELL: Yeah. I mean, we
8 can, but let me just say --

9 MR. GARCIA: Because this is my --
10 excuse me, Mr. Pernell. You have the authority,
11 obviously, to do appliance standards, building
12 standards, new res, non-res, and I appreciate
13 that. And that's not -- mine's more a matter of
14 curiosity and whether this is a timing issue,
15 because your appliance standards are involved in
16 some litigation, and that probably has nothing to
17 do with it. But I, maybe we can just sit down and
18 talk a little bit about that and see, maybe you
19 can educate me on why I'm not reading this right.

20 MR. PENNINGTON: One of the things you
21 should be aware of is that 5x captured a whole lot
22 of language that's pre-existing in 5x, in how it
23 documented the change, and it didn't mark the
24 section that was changing. And so what's there,
25 related to all of this, is the new section plus

1 what was there before. And I think that your
2 confusion may be related to what was there before,
3 because the new section didn't do what you said
4 it's doing.

5 MR. GARCIA: We can --

6 COMMISSIONER PERNELL: Here's what we'll
7 do with this. We have legal staff that has told
8 us that we are all part of putting -- however, I
9 would like to have something with -- a
10 consultation, I guess, with Mr. Garcia on exactly
11 what he think the legal ramifications are, whether
12 we should be in the appliance standards or the
13 building standards. Not being an attorney, and
14 reading this as a layperson, I think we can do
15 both.

16 So what I don't want to do is spend a
17 lot of time on this, and I would much rather hear
18 from the industry on how these regs will affect
19 them. And we will get to the legal question a bit
20 later. But before you go, Mr. Garcia, we want to
21 make sure that we have your information so that we
22 can set up something and maybe have a, maybe have
23 a meeting with our legal staff, and then you guys
24 can figure it out.

25 MR. GARCIA: Good. Be happy to do that.

1 COMMISSIONER PERNELL: Okay. That would
2 be good.

3 So if we can move on and get to some of
4 the concerns of the industry.

5 MR. ALCORN: Okay. Moving on, we have
6 two representatives from the International Sign
7 Association, Mr. Kieffer and Mr. Claus. Would
8 both of you like to speak, or -- okay. Mr. Claus.

9 MR. CLAUS: Robert James Claus. I have
10 a very -- to quote Yogi Berra, it's deja vu all
11 over again. I was at a meeting with Agoura Hills
12 some years ago when Grant Pavich was the mayor,
13 and I suddenly realized we had arrived at a
14 perceptual problem. I believe we've got that
15 here, one that the appellate court agreed with us,
16 and you've got that problem, Denny's et al, vs.
17 Agoura Hills. And you also have a problem that
18 the ninth agrees with us, in Blockbusters vs.
19 Tempe.

20 Sign codes, and this is what you're
21 regulating, is signs, have to be time, place, and
22 manner in -- there must, by law, be a substantial
23 benefit proven, no presumption of
24 constitutionality before you pass the code, and
25 the code must be very barely crafted to accomplish

1 that goal.

2 Now, I'm going to put these documents in
3 the record here, but you clearly need to
4 understand we have the right to look at the four
5 corners of your document and see your substantial
6 benefit. You have not produced any credible
7 research. Frankly, you're all being lawyers-like
8 and judges-like because you're telling us,
9 particularly your engineer, that we need to prove
10 your case. We don't.

11 Not only that, in Title 41 USC 1983 and
12 1988, you're looking at our cost of proving you
13 didn't produce credible research, and clearly, you
14 have nothing on this lighting, this time, place
15 and manner, with credible documentation about the
16 luminosity and the feasibility of conviscuity. In
17 fact, if you go to something like transportation
18 institute, talk to some of them, you'd find out
19 they categorically disagree with you, and they
20 have disagreed. And I hope Mr. Benya's listening,
21 Mr. Benya, he knows it. They do not think the
22 standards you're proposing meet the standard of
23 care set out in the manual of uniform traffic
24 control, which is the prevailing sign code in the
25 United States.

1 But I tell you politely is that we will
2 wait until you take this up. We will then analyze
3 the document, and my instructions have been to
4 respond to administrative judges or 54 Business
5 and Profession Code 5499 and 5495, and prepare for
6 litigation.

7 Now, I want to explain, since it all
8 seems amusing, but I will tell you when the shoe
9 was on the other foot and we asked you to produce
10 these materials, we asked you to even be in with
11 some of the terms in this, such as visual acuity,
12 conviscuity, and you can't, you're going to find
13 very, very difficult litigation.

14 COMMISSIONER PERNELL: All right. So
15 let me interrupt you here, because since you're
16 going to litigate this, what I want to do is hear
17 from the industry and how we are affecting them.
18 What you're telling me is what you're going to do
19 when you start litigating the case, and I'm not
20 interested in that.

21 MR. CLAUS: That's not what I'm telling
22 you.

23 COMMISSIONER PERNELL: Well, I think you
24 are.

25 MR. CLAUS: Because what I'm telling you

1 is you do not have credible research either as to
2 time, place and manner. You've heard from -- and
3 you'll produce nothing that says there's a
4 benefit. And I'm asking you, as is your
5 constitutional right, before you violate this
6 industry's civil right, to produce those
7 documents. If you can't, we've arrived at a
8 loggerhead, and you're the ones that prefer to
9 litigate.

10 COMMISSIONER PERNELL: Okay, but you
11 don't know whether we can produce them or not.
12 So --

13 COMMISSIONER ROSENFELD: Can I ask you
14 just one question. All these long words which you
15 just have used, you are aware that what we're
16 discussing is no change in the lamps, only a
17 change in the ballast, which is probably going to
18 be required by the federal government anyway. I
19 just need you to understand that point.

20 MR. CLAUS: I'm not sure that's true,
21 Commissioner Rosenfeld. If I'd brought my expert
22 along, maybe he could explain that to you. But be
23 that as it may, our interpretations are slightly
24 different than yours on that.

25 COMMISSIONER PERNELL: All right. Why

1 don't we hear from your expert.

2 MR. CLAUS: Thank you.

3 MR. BENNEY: By the way, I'm back.

4 MR. ALCORN: Okay, Jim. Thank you.

5 MR. KIEFFER: The one that's left. My
6 name is Steve Kieffer. Today I'm here
7 representing the International Sign Association, a
8 trade association that represents sign businesses
9 in our country. We certainly appreciate the
10 opportunity to meet and talk with you.

11 Before I proceed, I'll just give you a
12 brief background and pertinent facts about myself,
13 so that you can understand where I'm coming from.
14 And I can tell you I'm going to skip a lot of
15 things. I know you're -- today got stretched out
16 more than you planned. So I'll try to --

17 COMMISSIONER PERNELL: It always does.

18 MR. KIEFFER: I operate a company that
19 manufactures UL listed signs, we have national
20 accounts. My company also manufactures a UL
21 listed luminaire and a UL certified building
22 structure. We ship our products all over the
23 United States.

24 Last year I had the honor to serve as
25 Chairman of the Board of the International Sign

1 Association. Prior to my time on the ISA's
2 Executive Committee, I served for many years on
3 the industry technical committee, including
4 multiple terms as chairman of that technical
5 committee. I am the sign industry's official
6 delegate to the National Fire Protection
7 Association panel that establishes the National
8 Electric Code safety requirements for signs and
9 lighting. I serve on four distinct UL standards
10 technical panels, and three national standards
11 committees. I think I know a little bit about
12 signs.

13 Both NFPA and UL perform in a very
14 important function to protect public health,
15 safety, and welfare. And I must point out that
16 both of those organizations follow strict American
17 National Standards Institute requirements for the
18 development of valid national standards, including
19 broad representation and voting on any proposal.
20 And, very significantly, all proposals must
21 include valid technical substantiation before they
22 can be considered. Any individual or group
23 speculations or beliefs carry no weight. Proof
24 must exist before a proposal can be considered.

25 Two weeks ago I was at the National

1 Electric Code panel meetings for the 2005 Electric
2 Code. As normal, approximately half of the
3 supposed proposals were rejected because there was
4 no technical substantiation.

5 COMMISSIONER PERNELL: Is that a
6 industry policy, is that some, is that a federal
7 law, or what --

8 MR. KIEFFER: This is a procedure
9 operating rule established by the American
10 National Standards Institute, ANSI, which is
11 required when you're developing national
12 standards.

13 In my opinion, your consultant's
14 statements in the March 18th, 2002, report,
15 Outdoor Lighting Measures Identification Report,
16 which is used as the substantiation for regulating
17 signs, doesn't even begin to provide proof
18 necessary to validate these proposals. Your
19 consultant's report, if you'd been following ANSI
20 standards, which the federal government
21 recognizes, should have been rejected without
22 further consideration.

23 Senate Bill 5x states that you're
24 regulating lighting devices. You've all read the
25 definition. Seems quite clear to me that some of

1 the electric components used in signs are, indeed,
2 lighting devices. And, in fact, you've
3 acknowledged that today, talking about electronic
4 ballasts.

5 Signs are not lighting devices. I'm
6 skipping a few things. A couple ways I can show
7 you that signs, indeed, are not lighting devices,
8 look to the National Electric Code definitions of
9 electric signs and outlined lighting. They
10 clearly identify the purpose as being
11 communications. Look at how the Electric Code is
12 structured. Lighting devices, luminaires, are
13 handled in Chapter 4. Signs and outline lighting
14 are handled in Chapter 6, Article 600. The only
15 reference in Article 600 to luminaries is a
16 specific exception from listing for previously
17 listed luminaires that are used for outline
18 lighting.

19 MR. PENNINGTON: What section were you
20 referring to, again, there?

21 MR. KIEFFER: In the National Electric
22 Code signs regulated in Article 600.

23 Then I'd also direct your attention,
24 very quickly, to the federal government Small
25 Business Administration Website. I thought I had

1 a visual aid here, I don't. Seem to have buried
2 it.

3 Anyway, on that Website you're going to
4 find many, many pages of definitions, one of which
5 is a definition of an on premise sign, the product
6 we're regulating. And the federal government says
7 an on premise sign is a communications device
8 whose message and design relates to a business, an
9 event, goods, profession, or service being
10 conducted, sold or offered on the same property as
11 where the sign is erected. Clearly, not a
12 lighting device.

13 As you've heard from my friend Dr.
14 Claus, who works for our industry as a consultant,
15 signs and outline lighting are communication
16 devices. As Jim's been trying to express, this
17 is, we're talking about First Amendment right.
18 We're talking about speech. He's referenced many
19 of the cases, probably the most significant being
20 what's called the Central Hudson test, which is a
21 four point test --

22 (Noise interruption.)

23 MR. KIEFFER: Maybe we should all order.

24 (Laughter.)

25 COMMISSIONER PERNELL: We're sorry,

1 but --

2 MR. KIEFFER: Oh, that's great. I was
3 skipping sentences and losing myself, so it
4 helped.

5 I've skipped over quite a bit about that
6 signs are communication, but indeed, they are, and
7 many, many pages can be written about that. But
8 the most important thing is the Supreme Court
9 cases which say there has to be valid technical
10 substantiation for the regulation of speech, and
11 any regulations have to be as narrowly crafted as
12 possible.

13 Now, what I'd like to do, again I'll
14 skip over a lot of this because of time, is jump
15 more to the technical and to your proposal, and
16 show you some of the reasons why we have problems
17 with the First Amendment issue, and why that leads
18 to the potential of a civil rights case and all of
19 those things that none of us really want to do.

20 Okay. I did not spend a lot of time
21 looking at your document. I tried to pick out a
22 few things that specifically affect us. I spotted
23 other items I expect some of my friends in the
24 luminaire industry are probably going to talk to
25 you about, and I'll skip those.

1 But let's start with definitions, first.
2 This needs some help. Again, look at the SBA
3 Website. Marquees are defined, and they're not a
4 string of lights. They relate to the canopy, they
5 relate to theater marquees, very clearly defined.
6 Sign area, types of signs, internal sign, external
7 sign, all of those things that you've created
8 definitions for, those definitions already exist.
9 And I'd request that you use that. In fact, I'll
10 let you have this. I don't need to take this on
11 the airplane with me.

12 MR. PENNINGTON: They exist where, in
13 the NEC?

14 MR. KIEFFER: In the Small Business
15 Administration's Website. Okay. And by the way,
16 the industry reviewed these, so there's, these are
17 accepted by the industry as well as the federal
18 government. There you go.

19 One thing that's not defined is what you
20 call a panel sign. Not defined at all. And let
21 me come back to that a little later when we get
22 into answering some of your questions, Mazi,
23 about, you know, wattage per square foot, and all
24 those kinds of things.

25 Skip over a few of the things the

1 attorneys get excited about. I must tell you that
2 even though our industry is First Amendment, we're
3 also unique because we are property, and our
4 customers' property rights are affected, and there
5 are grave concerns about the lighting zones.

6 The buried anti-growth provisions that
7 are in your charts, I suspect -- I'll leave it at
8 that for now, but I would say that I think you're
9 going to have a lot of problems with that. I
10 suspect that your potential problems are greatly
11 understated, because hidden in this thing many
12 people are seeing a social re-engineering anti-
13 growth scheme. Not lighting controls.

14 As I said, I'm trying to skip as fast as
15 I can. I think people have already talked to you
16 before about the importance of not requiring
17 dimming provisions for signs. It obviously
18 relates directly to communications. Signs are
19 already designed to be used at night, not in the
20 daytime. We already hit the exemption for
21 interior signs. Let's just skip by a few of these
22 now, we'll hit them later.

23 Okay. So now, what would it take to
24 accomplish proper technical substantiation? I
25 think you've sort of been asking that. Now, how

1 would you do this?

2 Well, first there's multiple hypotheses,
3 each of which has to be addressed separately.
4 First would be to prove that a lighting system
5 exists which is capable of meeting present
6 communication needs of signage with identical
7 light output -- I think we've sort of talked about
8 that -- in all weather conditions, while gaining
9 an economically viable energy savings.

10 What's the problem with our industry and
11 the concerns about 11 watts, or you tried to, say
12 would 12 work, what's going to work. Well, the
13 wattage of signs is highly dependent on a bunch of
14 variables. Here is the first stage. I've been
15 working on this for two and a half year. Here's
16 my, my first two dimensional presentation of what
17 is really a three dimensional model of all the
18 variables in signs. Starts over here, with
19 letters. On premise, off premise, or public. Two
20 highlighted areas. A subset of cabinet signs and
21 a subset of illumination is all you're trying to
22 regulate out of all of the variety of signs.

23 In this presentation here there's about
24 three pages missing, because I haven't addressed
25 location, I haven't addressed structure, and I

1 haven't addressed design considerations in this.

2 You're not regulating all signs. You're
3 regulating one small subset. And you're not
4 regulating electronic ballasts right now; you're
5 regulating light output, which is related very,
6 very closely to speech. If indeed you want to
7 regulate electronic ballasts, and if indeed
8 federal regs which you, you need to look at. I
9 wouldn't want to interpret this, but Department of
10 Energy 10 CFR Part 430 covers ballasts. It looks
11 to me as if our industry is going to be using
12 electronic ballasts, which answers your question.
13 So drop all the regulations on signs. Anything
14 else you're doing is trying to control light
15 output. It will censor speech.

16 I need to point out that any new
17 lighting method that might come up would, of
18 course, have to make sure that it's readily
19 available to hundreds, or tens of thousands of
20 companies in our industry.

21 Now let's talk about these cabinet
22 signs. You've focused on fluorescent. A complete
23 range of light sources are presently used in and
24 on sign cabinets to accomplish communications.
25 It's not just fluorescent. We use incandescent

1 bulbs. Simple example. You go through the bank
2 drive-through. There's a little red sign that
3 tells you it's open or a little green one that
4 says it's closed. It's a cabinet sign under the
5 simple definition you have. There's incandescent
6 lamps behind that.

7 We put neon tubing as illumination
8 sources behind cabinet signs. I've done it, using
9 -- when the customer wants a red face, you use
10 neon tubing because it's very efficient for
11 exciting reflects. Opaque the background. We use
12 lots of HID lamps in cabinet signs. We use cold
13 cathode tubing, custom designed cold cathode in
14 HID signs, because the standard lengths of
15 fluorescent lamps don't fit all designs of sign
16 cabinets.

17 If you try to regulate a single subset
18 of the illumination sources we use in signs, there
19 will be massive substitution. You tell me I can't
20 do something with fluorescent lamps, I'll make
21 more cold cathode and put it in. It's that
22 simple. Or I'd use more HID, or whatever.

23 Second point. Any energy savings, if
24 you get to the point of calculating energy savings
25 I'd suggest that it needs to be done on two

1 levels. One is the obvious micro-economic level,
2 the individual company, a discounted cash flow
3 analysis comparing the cost over the life cycle of
4 the sign, giving full consideration to
5 acquisition, maintenance costs, and the expected
6 savings. In real climate conditions.

7 By the way, that's the fallacy to some
8 of the new, supposedly great lighting sources that
9 they're trying to sell to our industry. You
10 ignore life cycle analysis, some of them can look
11 really good.

12 Of course, you have to do a macro
13 analysis to see if there's any real savings, the
14 peak demand things folks are talking about.

15 But separately, and what Dr. Claus I
16 think has tried to express, is if you establish
17 potential regulations based on analysis of signs,
18 and if those resulted in a reduction of light
19 output, to determine whether or not that censors
20 speech and therefore it exposes you to the First
21 Amendment problem, you'd have to check to make
22 sure that readability and conspicuity -- these are
23 traffic safety engineer words -- has not been
24 compromised for any person able to get a driver's
25 license, in all temperatures, all weather

1 conditions, with a full range of sign face
2 materials, colors, contrasts, font types, et
3 cetera. In real driving conditions.

4 The kind of testing they do for these
5 simple little highway signs. They're simple,
6 they're white and green. They have real
7 facilities in Texas where they drive cars around
8 to figure out what works and what doesn't. You
9 know, it isn't someone sitting in a laboratory
10 looking at a TV screen, saying, that looks nice.
11 Of course, any lighting system would have to meet
12 normal safety standards. We all understand that.

13 Need to point out, light output measures
14 for signs must occur after aging, so they reflect
15 average expected performance. Many of the light
16 sources sold to us dim with age, some of them
17 pretty quickly. And the first LEDs I tested for
18 potential use in signs about three years ago, lost
19 20 percent of their light output at room
20 temperature in two weeks.

21 First electronic ballast I tested two
22 and a half years ago, and I have a cold room, I
23 can put full size, small signs in it. It was a
24 six lamp ballast. Two out of the six lamps
25 wouldn't work when the temperature got below 20F.

1 Yet it was being sold as a cold weather electronic
2 ballast that would work to minus, minus 20F, not
3 plus 20.

4 Real conditions are important. They
5 need to be pre-conditioned for temperature and
6 humidity. Our industry has seen many components
7 promoted to us by wonderful salespeople, that
8 don't work in the temperature and humidity
9 conditions.

10 So what are some of the variables? Let
11 me give you a few ideas. Sign cabinets, height
12 and width varies from as little as a foot to
13 almost unlimited size. Sign cabinet depth varies
14 based on creative design considerations, internal
15 structure requirements, serviceability, location
16 restrictions, and can be from as low as a few
17 inches thick to four or more feet thick. Depth
18 also changes if it's a three or four or multi-
19 sided sign.

20 The number of faces we illuminate with
21 an internal lighting source can vary from one to
22 four. And even though it might be a double face
23 sign, there are times where you'd have double rows
24 of lamps. In fact, one of the reasons we use HID
25 lamps in large sign cabinets is to avoid having

1 two separate rows of high output lamps, which
2 would cost more to build, cost more to operate,
3 and cost more to service. So we put large HID
4 lamps in signs to handle the real thick ones.

5 A few years ago I built a sign that's in
6 north Georgia, 20 feet high, 60 feet wide, four
7 foot thick. It's got four 400 watt HID lamps four
8 foot on center. And it's in a rural area, just
9 barely acceptable to the customer for
10 illumination. That sign, as I recall, that one's
11 operating at about 25 watts per square foot, to
12 use the kind of measurements you're looking at.
13 It has catwalks inside, has its own breaker panel,
14 has all kinds of things.

15 We use a whole variety of materials for
16 the faces, even in the simple panel signs you're
17 talking about. We use translucent pigmented
18 acrylic and polycarbonate, polymerics, each of
19 which has their own transmission characteristics.
20 We use clear white ivory polymerics, decorate them
21 with paints, inks, vinyl sheeting. We use
22 translucent fabrics, decorate them with paints,
23 inks, vinyl sheeting. We even use real thick
24 plastic, push it through a face, put something
25 else on top of it, to create unique presentations,

1 all of which are designed to communicate the
2 customer's unique message. Each of which needs
3 different lighting to accomplish that
4 communication.

5 Lamp spacing within a sign, the question
6 Koze was trying to answer, which his range of
7 products doesn't give him the experience to answer
8 the question you were trying to ask. Lamp spacing
9 in the signs I build has ranged in recent years
10 between six inches on center and 14 inches on
11 center, with high output fluorescent lamps. And
12 the wattage, the wattage, output wattage of the
13 lamps varies depending on the length of lamp. The
14 least efficient lamp happens to be a seven foot
15 high output, but sometimes we have to use it.

16 Wattage also varies when you start
17 stacking up rows of lamps.

18 MR. SHIRAKH: Did you say seven foot
19 high output is the least efficient?

20 MR. KIEFFER: That's the least. This
21 came out of simple calculation based on one foot
22 per square one lamp, or per foot, using GE's
23 catalog, I believe.

24 MR. SHIRAKH: Because we heard yesterday
25 ten foot was the least efficient.

1 MR. KIEFFER: The normal range, and I've
2 done some simple analysis, the normal range for
3 lamps -- and I didn't look at ten foot, by the
4 way, I just, I used the two to eight foot are the
5 most commonly used, and the range of watts per
6 square foot that I found in a quick look was from
7 10 to 23 watts per square foot, to accomplish
8 similar illumination just dependent on cabinet
9 thickness and the effect that has on lamp centers.

10 I probably lost myself, but. So there's
11 a big range and it's not, I mean, it's, we're not
12 intentionally consuming extra energy because we
13 love to sell thing. We're doing what's necessary
14 to provide the communications that our customer
15 wants. Okay.

16 MR. PENNINGTON: Could you provide that
17 analysis that you said you did for --

18 MR. KIEFFER: Sure. I can show it real
19 easy, Bill. It was a simple spreadsheet changing
20 the --

21 MR. PENNINGTON: Okay. We'd like to see
22 that.

23 MR. KIEFFER: -- the centers, and using
24 the numbers from the lamp manufacturer's catalog,
25 and all those things. Without a doubt, our

1 industry wants to use electronic ballasts when
2 they're available for us. The federal regs which
3 are going to force this, there's only one
4 exemption in here I can see for high output cold
5 weather ballasts, and that's a ballast using two
6 F9621282s. So whoever said they thought that the
7 federal regs are going to require electronic
8 ballasts for our industry, I think that's correct.

9 MR. SHIRAKH: So there was -- could you
10 repeat that exception, please?

11 MR. KIEFFER: The one exception that --
12 I'll give you this. One exception I found was a
13 ballast that is designed for use with two F96T12HO
14 lamps, and ambient temperatures of minus 28 F, or
15 less, for use in outdoor signs. They only
16 specified one of a multitude of ballasts that we
17 use. Obvious conclusion, everything else is going
18 to be electronic.

19 There's many other variables with sign
20 cabinets. You know, if you want a good education
21 about them I'd be happy to spend a lot of time
22 with you guys. Obviously, from this, we deal with
23 tremendous range of variations in the products we
24 manufacture.

25 We also deal with big ranges of weather

1 conditions for proper operation. You've all seen
2 the minus 20 F that's required for cold weather
3 ballasts and lamps, which is the reason we use T12
4 lamps. T8s, so far, won't operate in those cold
5 temperatures without higher currents than what's
6 supplied.

7 But there's a top end range, too. The
8 testing standard that Tramm Company uses for all
9 products they sell to our industry for use in
10 exterior signs is plus 90 C. Interiors of some
11 sign cabinets get that warm from solar heat gain.
12 The people who are, been working on LEDs to try
13 and make those, indeed, useful for our industry,
14 that's their big problem. LEDs are great when
15 they're cold, but you get them above 55 C, you
16 have permanent light degradation and dramatic drop
17 in life expectancy.

18 Humidity, you can obviously understand
19 humidity and dirt and all those things that happen
20 with our products.

21 As it presently exists, graphic
22 designers, sign companies, alter the quantity and
23 type of lighting to accomplish proper illumination
24 and visual presentation of our customers' message.
25 And the message is not the copy on the sign face.

1 It's not the words or the logo. It's the complete
2 visual presentation. It's the complete sign. It
3 includes embellishments, enhancements, highlights,
4 some of which are lighting effects. And in some
5 cases, the message is the whole building, because
6 there are retailers who have registered copyrights
7 of their whole building, including the
8 architecture, the sign, and the outline lighting.
9 And federal law, the LANAMAC, protects them from
10 alterations of that registered trademark.

11 Obviously, as I said, not all signs are
12 illuminated with fluorescent lamps. Many use HID.
13 HID lamps are often used in thick cabinets for
14 serviceability, for a whole variety of reasons.

15 And now let's go, I'm going to give you
16 a conclusion, something historic. A couple years
17 ago my company had the opportunity to manufacture
18 the historic reproduction of the Chicago Theater
19 sign. It's been featured on some magazines and
20 TV. You may have seen it in the movie, "Chicago",
21 that big vertical sign that says "Chicago". It's
22 76 feet high, 16 feet wide, 115 feet above the
23 ground to the top of it.

24 The original sign weighed 40,000 pounds.
25 The new one's made out of aluminum, weights 13 --

1 or 16,000 pounds. That sign is four foot thick.
2 We satisfied the historic preservation
3 requirements, and duplicated that 75 year old
4 sign. It's illuminated with 2,534 11 and 25 watt
5 incandescent bulbs. It's, the first calculation
6 you'll come up with is 17,675 watts per face, or a
7 little over 35,000 watts for the sign. It's about
8 a 900 square foot sign. It's rather interesting,
9 when you divide that out you get 20 watts per
10 square foot, well within the range of what's
11 happening with fluorescent lamp signs every day,
12 even though we all think incandescent's always
13 less efficient, right?

14 It gets even better than that, because
15 the perimeter of that sign, all those little 11
16 watt lamps, 1888 of them, are on a flasher, a
17 chaser. Only two-thirds of the lamps are on at
18 any one point in time. So in actual wattage
19 consumed per face is about 14,000 watts, 15.6
20 watts per square foot. It's right there in the
21 middle of every one of the fluorescent signs we
22 built. Which, as I said, range between 10 and 23
23 watts per square foot.

24 The reason I cite this, this case proves
25 that simplistic assumptions on light source type

1 and inadequate knowledge regarding the diversity
2 of our products -- and I must tell you, I've, some
3 of our industry people who have been working with
4 you, I've been harassing them because they haven't
5 shared enough of this with you. It leads to false
6 conclusions.

7 I have similar concerns about outline
8 lighting, which is part of the communication
9 message some people use. Backlighted awnings,
10 which are signs when they have copy on them.
11 Marquees, think of the old theater marquee. That
12 is a sign. There's some difficulties in your
13 definitions here, and how you're handling some of
14 those, and whether they're canopies, sales
15 canopies. There's some overlap that's going to
16 cause some problems, and needs some work.

17 I strongly request that on premise signs
18 be exempted from the regulations. The purpose,
19 which is energy savings, is already being
20 accomplished by the federal regulations. To try
21 and do a simplistic regulation of signs based on
22 simplistic watts per square foot will drop you
23 into a quagmire that's going to lead to conflict
24 over First Amendment censorship that's not
25 necessary to accomplish what your job is.

1 And I ask for a second reason. The rest
2 of our country is going to watch what you do here.
3 If you do a good, proper job and nobody's
4 challenging it, you not only will help your state,
5 you will help the rest of the United States
6 because we all have the same concerns. You know,
7 we, I live in Wisconsin. We sit there and watch
8 what you guys do, but I know it's going to show up
9 in Madison before too long. Actually, sometimes
10 Madison does it before you do.

11 I'm finished. Questions, or --

12 COMMISSIONER PERNELL: Well, I just want
13 to thank you for your presentation. And I'm not
14 sure that the, it's proper for the committee to
15 ask for your presentation, but -- so let me do
16 that. Do you have something you can leave with
17 us, or send to us, because you quoted a lot of
18 things --

19 MR. KIEFFER: Right.

20 COMMISSIONER PERNELL: -- and, you know,
21 we're --

22 MR. KIEFFER: Sure.

23 COMMISSIONER PERNELL: So, but there's
24 some other things that we're, the committee's
25 interested in, anyway. You've come with more

1 facts and references, and you're correct, and I've
2 heard from the industries lately, so I would
3 certainly want to get a copy of that and be in
4 touch with you, and maybe you can help us design
5 something that would benefit everybody.

6 MR. KIEFFER: Obviously, my position,
7 our industry position is if you want to regulate
8 electronic ballasts, then specifically state
9 that's what you're doing. Don't use a bogie,
10 which is watts per square foot, which won't
11 accomplish what you're trying to do, and will
12 censor speech because the signs vary too much.

13 Answering your question now, if you give
14 me a chance to clean it up, I went at it for about
15 five hours this morning, starting at 4:00 in the
16 morning, and some of the things I typed here, it's
17 good you didn't hear them.

18 (Laughter.)

19 COMMISSIONER PERNELL: I mean, granted,
20 it's certainly at your convenience, but, you know,
21 the committee would be interested in some of the
22 things that you said.

23 MR. KIEFFER: Certainly. We firmly
24 believe that --

25 COMMISSIONER PERNELL: What's embedded

1 in your presentation.

2 MR. KIEFFER: We firmly believe, and
3 that's why we're so excited and keep showing up,
4 is the importance of our products to our country,
5 to our economy, and the importance of making sure
6 that any energy regulations don't have unintended
7 consequences.

8 COMMISSIONER PERNELL: Thank you. Do we
9 have any questions?

10 MR. SHIRAKH: I just wanted to second
11 the Commissioner, and if you can send us your --
12 everything you said is going to be on the record,
13 but it's going to be about three weeks before we
14 get it, and we don't have that time to wait. So
15 if you can.

16 MR. KIEFFER: Why don't you give me a
17 card so I know who to e-mail things to.

18 MR. PENNINGTON: It would be useful to
19 get the spreadsheet that you said you would give
20 us, too.

21 MR. KIEFFER: Yeah. Oh, yes.

22 MR. PENNINGTON: That'd be great.

23 COMMISSIONER PERNELL: All right. Who's
24 next, because we're really running out of time.

25 MR. ALCORN: Yeah. We're being late

1 here.

2 The next speaker, Mr. Abrams, Jim
3 Abrams, from California Hotel and Lodging
4 Association.

5 MR. ABRAMS: Thank you. I'm Jim Abrams,
6 I'm the president of the California Hotel and
7 Lodging Association. We represent lodging
8 establishments of all kinds, small bed and
9 breakfast inns up to the largest in the state,
10 located all over the state, rural areas, and all
11 of the zones that are talked about in the
12 regulations. A lot of them are little small
13 fishing camps and fishing properties, and
14 campgrounds and things like that.

15 And the concerns that we have had
16 regarding the outdoor standards -- we have some
17 questions regarding the indoor standards, too --
18 but with respect to the outdoor standards, the
19 first, not so much in matter of importance, has to
20 do with the signage issue.

21 And if I understand, if I could just
22 ask, the presentation that Charles Eley made a
23 little while ago, I understand that you're for
24 internally illuminated signs, you're proposing to
25 increase the allowance for power and also allow

1 internally illuminated signs in Zone 1. Is that
2 correct?

3 MR. ELEY: That's correct. It will be
4 permitted in Zone 1, the allowance is 11 watts per
5 square foot. We believe that that can be achieved
6 with the simple substitution of an electronic
7 ballast, and no other change.

8 MR. SHIRAKH: I'm sorry, but I think
9 that is not correct. The allowance for signs was
10 11 watts for Zones 2, 3 and 4.

11 MR. ELEY: Oh, it's lower for 1.

12 MR. SHIRAKH: Not allowed in 1. That's
13 the current proposal.

14 MR. PENNINGTON: For internally --

15 MR. SHIRAKH: Internally illuminated
16 panel signs.

17 MR. ABRAMS: Are not allowed?

18 MR. SHIRAKH: Are not allowed in
19 Lighting Zone 1, which would be Yosemite National
20 Park, and so forth.

21 MR. ABRAMS: Okay. The reason I asked,
22 and not to belabor the point, in one of the charts
23 that Charles had up there, it says that changes
24 since --

25 MR. SHIRAKH: Is really not correct.

1 MR. ABRAMS: Okay. Then I will, again,
2 make the point that I made at your last, the last
3 presentation. We have a lot of properties that
4 are in national parks, Yosemite, Kings Canyon,
5 Sequoia, Anza-Borrego, places like that. They
6 need some ability to illuminate their presence, to
7 announce their presence, so I would -- and when I
8 saw this I was pleased prematurely.

9 We, that is an issue that we feel very
10 strongly about, because we have a lot of
11 properties in rural areas, in park areas, state
12 and national parks, that need some ability to
13 communicate their existence. It's how they
14 market, it's the way people find them, it's a way-
15 finding issue for people, and so I would like to
16 reiterate that that is a consideration we would
17 like you to revisit, please, and we'd be happy to
18 help you with that.

19 MR. SHIRAKH: May I respond to that?

20 MR. ABRAMS: Of course. Please.

21 MR. SHIRAKH: It only governs internally
22 illuminated, the cabinet signs. It does not
23 include exteriorally or -- externally illuminated
24 signs, nor what we call a channel letter sign.
25 Those are all excluded. And there is an exclusion

1 here for internally illuminated panel signs of six
2 square foot or less, they're also exempt. Neon
3 signs, cold cathode, are all other means that you
4 can use for communications.

5 MR. ABRAMS: Thank you for that. And
6 so, at least, what you're saying, then, is that
7 even in Zone 1 there will be signage capabilities
8 that people can take advantage of. Then that's
9 fine.

10 MR. SHIRAKH: I go to Yosemite all the
11 time, and --

12 MR. ABRAMS: And not knowing to what
13 extent an internally illuminated sign would be
14 important to an innkeeper, I guess I will just
15 leave the issue on the table, because I don't have
16 a --

17 MR. PENNINGTON: It might be useful to
18 identify whether or not current lodging in
19 national parks have internally illuminated signs.

20 MR. SHIRAKH: Most tend to use channel
21 letter signs.

22 MR. ABRAMS: I will be happy to find
23 that out. We've got a lot of members in the park
24 system, and let me -- I'd be happy to find out.

25 MR. ARAN: Just real quickly, it's not

1 so much a matter of what they're using now.

2 COMMISSIONER PERNELL: You'll have to
3 restate your name for the record.

4 MR. ARAN: Jeff Aran, California Sign
5 Association.

6 It's not so much a matter of what
7 they're using now as it is what might be coming
8 down the road, because these regulations will only
9 affect new construction. So the concern would be
10 that if there is a situation in a Zone 1 that
11 requires some sort of a panel sign, or the
12 externally illuminated sign provisions are
13 insufficient, they won't be able to adequately
14 identify themselves.

15 And there also may be some other safety
16 issues involved, especially in the darker areas.

17 MR. ABRAMS: I will just, to the extent
18 that -- what we don't want to do is end up cutting
19 people off from something that's a viable source
20 of communication.

21 The other issue, not so much with the
22 signage, has to do with security and safety. And
23 this is something we were very heavily involved in
24 when the governor announced the curfew cut-off in
25 2001 -- right, 2001, when the energy crisis was in

1 play. In looking at Section 130C, Exception 1, it
2 exempts from the requirements relative to outdoor
3 building lighting, lighting required by a health
4 or life safety statute, ordinance or regulation.
5 And the concern we have is that many security
6 related lighting standards, industry standards,
7 requirements, have never been taken to the point
8 of becoming encompassed in a statute or a
9 regulation adopted by a federal, state, or local
10 governmental entity.

11 And I think the challenge is up to us,
12 in the industry, to come up with some wording for
13 you that would -- and I do understand what you
14 don't want to do is open up a window for increased
15 lighting under the guise of security and safety
16 that would allow a lot of abuse. But I, I guess
17 the question is, if we can come up with some very
18 narrowly crafted language that would encompass
19 security and safety considerations without
20 creating an exemption that emasculates the rule, I
21 think that would be extremely important. We have
22 hotels and inns of all kinds being sued regularly
23 for security problems, for slip and falls in the
24 parking lots, on pathways, people coming to and
25 from guest rooms, swimming pool areas, and things

1 like that. And so there is going to be a need for
2 safety and security illumination outdoors that
3 might not be embodied in a, quote, statute or a
4 rule or a regulation adopted by some governmental
5 agency.

6 So I guess the question is, is that
7 something we can work on with you, or -- and I
8 don't want to put you on the spot, either, but --

9 MR. SHIRAKH: Yeah. We thought about
10 those things. And in fact, if you look at page
11 130 of the regulations, Table 147-C.

12 MR. ABRAMS: Am I looking at the -- I
13 don't see a table there.

14 MR. SHIRAKH: Yeah, I don't know which
15 -- it should be on --

16 MR. ABRAMS: Page 130? Oh, you're --
17 okay, I'm looking down at the bottom. All right.
18 Okay. Again, I guess the challenge for us is if
19 it's a law or an ordinance, that means something
20 that's been formally adopted by a governmental
21 entity. Many security related lighting practices
22 have never been adopted in the form of a
23 regulation or a statute by a governmental entity.
24 And, but nonetheless, they are very valid concerns
25 for the lodging establishments.

1 MR. SHIRAKH: Let's then have a
2 conversation again.

3 MR. ABRAMS: Okay.

4 MR. SHIRAKH: You mentioned, we don't
5 want to drive -- I mean, create a loophole that we
6 can't --

7 MR. ABRAMS: No, and I appreciate that's
8 the challenge. And I think the burden is on us in
9 the industry to come up with some language that
10 will be narrow, but that will expand a bit beyond
11 what you're offering as an exemption right now.

12 Those are the comments I wished to make.
13 Thank you very much.

14 COMMISSIONER PERNELL: All right. Any
15 questions?

16 MR. ALCORN: Okay. Thank you, Jim, very
17 much.

18 Next, Dawn DeGrazio, from SMUD.

19 MR. SHIRAKH: She left.

20 MR. ALCORN: Oh, she's gone. Okay.
21 Cheryl Fraga.

22 MS. FRAGA: I was going to say good
23 afternoon, but now it's good evening, is it not.
24 I'm Cheryl Fraga, I'm the General Manager of
25 GARDCO Lighting, a manufacturer of outdoor

1 luminaires here in the state of California. And
2 I'm also here representing the luminaire section
3 of the National Electrical Manufacturers
4 Association.

5 Our primary concern right now is that we
6 have repeatedly requested data to verify the
7 models that have been presented reference the
8 majority of the outdoor standards, and to date
9 we've not received that data.

10 Why the heck do we want that data? We
11 want it because the models that were presented at
12 previous workshops did not address the major
13 wattages and pole heights used in parking lot
14 illumination, and we are going to be the sellers
15 of your standard to specifiers and end users.

16 Our customers rely on us to design site
17 lighting projects for them on a daily basis. I
18 have a staff of four people that does nothing but
19 design parking lots, facade lighting, landscape
20 lighting, for customers every day. And if we
21 don't understand how these lumen power densities
22 have been arrived at and can convince customers
23 they're going to be okay, you're going to lose a
24 significant selling force for your standards.
25 And it's going to cause problems.

1 This is, these standards are going to be
2 a rude awakening for our customers. Although the
3 standards result in lumen power densities that are
4 at or close to -- meaning below -- IES recommended
5 practices, IESNA is just that, a recommendation of
6 light levels. They are not standards, and
7 frankly, they are not adhered to in practical
8 application by a huge component of our customers,
9 partly because people use outdoor lighting as a
10 marketing tool, partly because of the issue that
11 was just mentioned. They're afraid of the Bob
12 Garcias of the world who want to sue them on a
13 regular basis if their parking lots are not safe
14 and secure, not only for their employees, but also
15 for their customers.

16 The National Parking Association has
17 published data reference that point, which
18 indicates that in lawsuits relative to exterior
19 lighting, exterior incidents, inadequate lighting
20 is at the top of the list cited by attorneys in
21 litigation, and the median loss to an owner in
22 such a litigation is \$1.2 million. So this is
23 significant dollars to end users.

24 These standards, as an example, would
25 render the number one corporation on the planet,

1 Wal-Mart, specification unusable in the state of
2 California because their required light levels are
3 higher than the standards, the product that they
4 use does not match the standards that you're
5 proposing. So you're going to have some big
6 powerful end users that are eventually going to
7 become aware of these standards, and there's going
8 to be problems.

9 I'm concerned that we may be chasing
10 customers and businesses away from a very
11 struggling California economy during a time when
12 we really want to attract those people to our
13 state.

14 Part of the problem with the models is
15 that they've showed four pole grids which don't
16 take into account the full site geometry, or
17 perhaps they do, but we haven't seen the data to
18 back them up. And they lead to those IES minimums
19 or below, which are disconcerting to many of our
20 customers, and we're going to need to find a way
21 to alleviate those concerns.

22 I'd like just a point of clarification,
23 if I could, because Gary Fernstrom said something
24 this morning that caused me to think twice. He
25 mentioned that we're well away from these

1 standards coming into practice, four or five
2 years, and I was thinking that it was a much
3 sooner timeline, that you were still on track to
4 try to finish the standards this summer, have them
5 voluntary starting in 2004, and become mandatory
6 in 2005. So I'm just looking for clarification of
7 that point.

8 MR. PENNINGTON: You want that answered
9 right now?

10 MS. FRAGA: Sure, Bill.

11 MR. PENNINGTON: Okay. The standards
12 would go into effect with the California Building
13 Code when that Building Code goes into effect.
14 The goal for that is sometime in 2005. Generally,
15 the Building Code gets changed every three years.
16 The last time it was updated was November of 2002,
17 so if the system beats November of 2005, that
18 would be kind of surprising.

19 There are substantial issues with other
20 parts of the Building Code that are likely to lead
21 to delay of that. I've heard a prediction of
22 sometime in 2006 before that gets reconciled.

23 MS. FRAGA: Okay. 2005, in my opinion,
24 is coming like a freight train. And in terms of
25 how construction projects unfold, jobs that my

1 team is helping to design today, I cross my
2 fingers and hope that a component of those
3 actually come to fruition within the next 12
4 months. Sometimes you have fast track jobs, but
5 the design process starts very early and happens
6 frequently 18 to 24 months before site lighting is
7 actually installed. Which is why specifiers and
8 end users are going to need to understand these
9 standards and be in compliance well before that
10 construction process beings, which does mean the
11 window to deal with it, even if the standards
12 aren't implemented until November 2005, we'll be
13 dealing with it, you know, in the next six to
14 twelve months, in terms of designing projects, to
15 avoid the cost and time to have to redesign once
16 they realize they're going to have to be compliant
17 with these standards when they actually go to
18 install lighting equipment.

19 The standards really do, on the surface,
20 appear to be not just energy saving standards, but
21 a lot of my customers, I know, are going to think
22 that what they're trying to do in California is
23 throttle back light levels and implement a cut-off
24 program. And in some cases, those two are in
25 conflict. Although NEMA has concurred with the

1 cut-off recommendations that have been written
2 into the standards, we're still asking that the
3 language be changed from 175 to mean greater than
4 175, so that the 175 watt does not have to be
5 included in the cut-off criteria.

6 Dawn left, but her letter, when I read
7 it today, I said that's exactly what I fear is
8 going to come to this committee repeatedly. As I
9 said, NEMA said, you know, we concur because many
10 of the NEMA members agree philosophically with
11 cut-off illumination and control of glare.
12 However, sometimes that's not the most energy
13 efficient way to light a site, and those are the
14 points that Dawn was making in her letter to the
15 Commission today. So other entities are probably
16 going to bring that to your attention, even though
17 NEMA is saying hey, we're okay with that.

18 The cost of implementing the kinds of
19 solutions that customers can implement in order to
20 meet your standards and try to get as much light
21 on sites as they desire, fall into the area of
22 controls. And we've repeatedly said that controls
23 in exterior lighting are not currently readily
24 available in the marketplace, or mass produced.
25 In fact, a control system, a bi-level switching

1 system, has existed through several manufacturers
2 for some time for garage lighting, which is now
3 going to be part of the standards.

4 I've sold so little of that kind of a
5 solution to an end user, because it doesn't pay
6 back for an owner. The energy savings doesn't pay
7 back swiftly enough for an owner to want to spend
8 the kind of money it takes to install such a
9 system, because they're very expensive.

10 At the last workshop Jim Benya said
11 well, that's, you know, it's a good reason to have
12 standards, to push the industry to make
13 technological advances and changes. And I don't
14 disagree with that. I'm just concerned about the
15 timing of that.

16 One of my constant frustrations as
17 someone who runs a lighting company is how long it
18 takes us to get a product to market. From design
19 inception to mass production, and then the
20 missionary work to get the information out to
21 specifiers and customers, to get that on specs and
22 finally get it on a job, is years in the making.
23 And there again, I'm concerned about the timeline
24 for enforcing these standards because the controls
25 equipment is probably not going to be in place at

1 a time when these standards may be in place.

2 The timeline's long, and there's going
3 to be considerable expense at a time where
4 lighting companies are struggling financially
5 because of the depressed US economy to make the
6 kind of investment some of us are going to have to
7 make in order to provide the controls that you're
8 seeking for exterior lighting. Unfortunately,
9 it's just not as simple as interior.

10 We can't use motion sensors effectively
11 outdoors. They're not UL listed what location,
12 which is mandatory outside a building. They're
13 sensitive to wind and rabbits and dogs, and things
14 that can trip them, which render them really an
15 ineffective solution.

16 Electronic ballasts do not exist for
17 high wattage HID, which is the most common wattage
18 used in parking lots, 400 and 1,000 watts are used
19 all the time. Although there's pole start
20 ballasts instead of probe start ballasts that
21 customers are taking advantage of, electronic
22 ballasts don't exist yet. So the ballast
23 companies are going to also have to embrace the
24 idea that they need to produce those kinds of
25 products and also bring them to market, and it's

1 taken them years to get successfully HID
2 electronic ballasts on the market in the lower
3 wattage.

4 So there again, a solution that you
5 could offer to another component of the standards
6 just isn't there for us to counsel our customers
7 to utilize when it comes to parking lot lighting,
8 in particular.

9 So the timing of all this is a little
10 bit disconcerting and a little out of step with
11 current technology that's available. And I just
12 wanted to make you aware that that situation
13 continues to exist. And although these standards
14 have certainly been motivating to me personally,
15 to, as a manufacturer, try to deal with this in
16 some way, I don't manufacture ballasts. I
17 manufacture luminaires. So eventually, somebody
18 has to give me a ballast and a lamp that I can put
19 into an energy efficient luminaire in order for me
20 to successfully market a product under these
21 standards.

22 So we still have concern regarding the
23 timeline. And reiterate again, we really, we're
24 asking again to see the data that verifies the
25 models that you've presented.

1 Thank you.

2 COMMISSIONER PERNELL: Just one
3 question. You asked about, I guess, information
4 you're trying to get that you haven't gotten?
5 What was that, again?

6 MS. FRAGA: It's a data that verifies
7 the models that have been presented for outdoor
8 lighting. ASHRAE, that's been mentioned numerous
9 times today, developed new standards recently. We
10 made the same request and got a lot of data from
11 ASHRAE to support the standards that they're about
12 to publish. And we're looking for the same, the
13 same information from this committee, as well.
14 Which we've been told exists. So we're just
15 asking that we have an opportunity to view that.

16 COMMISSIONER PERNELL: Okay.

17 MR. SHIRAKH: I talked to Jim Benya this
18 morning, and I asked him to provide that
19 information to you and Cheryl English.

20 MS. FRAGA: Okay. Thanks, Mazi.

21 MR. FERNSTROM: Before you leave, I want
22 to ask a question. You know the, to me, this 50
23 percent control actually evolved from Executive
24 Order D19, which requested marketing lighting be
25 turned off by 50 percent at night. And there were

1 a significant number of people who called us,
2 basically saying how can we do that. And the
3 problem was is nobody was circuited really to
4 accomplish that. And so there were a significant
5 number of California residents who want the
6 ability to turn their lights off 50 percent.

7 Now, we heard earlier, earlier in this
8 proceeding, that the motion sensors would work.
9 And so we did drop that. And what the current
10 standards draft says is that the occupant should
11 have the ability to turn off their lighting system
12 by 50 percent. And so that's the goal here.

13 MS. FRAGA: You can separate circuit
14 your parking lot so that you can turn off half the
15 luminaires. The problem with that is that owners
16 hate that solution because then it creates dark
17 areas in their parking lot, instead of a lower
18 level of even illumination, which gets to the
19 safety and security risk that they're very, very
20 paranoid about.

21 Or if you're a grocery store, for
22 example, these are the kinds of things we talk to
23 grocery stores about today. We say hey, turn off
24 the luminaires, you know, the outer areas of the
25 parking lot at midnight, leave the ones close to

1 the store on because you don't have as many
2 customers in the middle of the night. And they
3 can do that, but where's an incident going to
4 happen in their parking lot, then? It's going to
5 happen out in that dark area, and a lawyer's going
6 to come and sue them for not having lighting out
7 in that darker area.

8 So the solution eventually, dimmable
9 exterior lighting systems is, is the long-term
10 answer. It just doesn't exist today, yet. And
11 right now, to try to do it even in a prototypical
12 way, unbelievably expensive for both the owner and
13 the ultimate occupier of that site.

14 COMMISSIONER PERNELL: Thank you.

15 MR. SHIRAKH: Again, all we're asking
16 there is for them to have the capability. How
17 they want to operate it and when they want to
18 operate it, it's up to them. There's no
19 requirement on our part that they must use it.
20 It's entirely up to their discretion.

21 MR. ALCORN: Okay. Thank you, Cheryl.

22 We have one more commenter, Mitch
23 Gutell.

24 MR. GUTELL: Being the last commenter,
25 that means I'm the one that's holding you up from

1 leaving.

2 MS. SHAPIRO: We can't hear you.

3 MR. GUTELL: My name's Mitch Gutell.

4 I'm with bp, or Arco on the west coast here. And
5 being the last speaker, that means I'm the one
6 that's all holding you up from going home.

7 COMMISSIONER ROSENFELD: It's still not
8 loud enough. You have to do something.

9 MR. GUTELL: Okay. Sign language, or --
10 because this, I don't know what else to do to make
11 it louder. It's, this is as loud as it gets.

12 COMMISSIONER PERNELL: Get real, real
13 close to the mic.

14 MR. ALCORN: You know, excuse me. I
15 think I'm -- I may have misled you by saying it's
16 the last speaker. This is the last speaker for
17 outdoor lighting. We still have indoor lighting
18 to address.

19 MR. FERNSTROM: Bryan, I had intended to
20 speak about residential and non-residential
21 lighting, including outdoor lighting. Maybe that
22 wasn't clear.

23 MR. ALCORN: No, it wasn't. Sorry.

24 MR. GUTELL: Okay. Now, this is
25 working?

1 MS. SHAPIRO: Now we can hear you.

2 MR. GUTELL: Good. Now I forgot what I
3 was going to say.

4 (Laughter.)

5 MR. GUTELL: All I wanted to do is,
6 because everything pretty much that I wanted to
7 say has been covered very well, thank you all for
8 doing that. And I just wanted to mention that
9 I've spoken to Gary earlier. I had the same
10 questions, I wanted to see where the -- how the
11 translation went from foot candles to watts per
12 square foot. And Gary agreed that we'd get
13 together and, either by e-mail or something, and I
14 could see those models. So to that extent, my
15 questions were answered, so thank you.

16 MS. SHAPIRO: Could you identify
17 yourself for the record, because we sure couldn't
18 hear it.

19 MR. GUTELL: Oh, I'm Mitch Gutell. I'm
20 with bp, or on the west coast we're Arco.

21 MS. SHAPIRO: Thank you.

22 MR. ALCORN: Thanks, Mitch.

23 Gary Fernstrom.

24 MR. FERNSTROM: Thanks, Bryan. I'm Gary
25 Fernstrom, Senior Project Manager for PG&E. I'm

1 an industrial engineer. I was trained as an
2 illumination engineer by PG&E in 1977, and I've
3 been involved in the energy efficiency business
4 for nearly 35 years.

5 I'm surprised that NEMA and the sign
6 industry seem to be opposed to increasing
7 efficiency in outdoor lighting. Now, clearly, the
8 legislature has asked the California Energy
9 Commission to develop outdoor lighting standards.
10 Parking lot lighting, building facade lighting,
11 the kinds of outdoor lighting that NEMA speaks to,
12 as well as signs of all types, are, indeed,
13 outdoor lighting.

14 I heard Mr. Kieffer talk about a number
15 of different parameters that could be changed in
16 signs to improve their appearance, improve their
17 visibility. He mentioned different kinds of
18 lamps, he mentioned different kinds of box
19 configurations, he mentioned different kinds of
20 lenses. I didn't hear him mention at all energy
21 efficiency.

22 It seems to me technologically, it ought
23 to be easy to get the same luminance on signs as
24 was had before, or as the sign industry wants, by
25 using advanced technology. In 1977, I was

1 introduced to the first electronic ballasts that
2 were built on a prototype basis for Lawrence
3 Berkeley Lab. That was nearly 30 years ago. Now,
4 for indoor lighting, T8s and electronic ballasts
5 are commonplace, and I just don't understand why
6 it is that with all the flexibility and ability to
7 substitute that the sign industry has in their
8 product design, they don't seem to be able to
9 consider the opportunity for electronic ballasts,
10 which would represent nearly a 30 percent energy
11 efficiency improvement.

12 PG&E would have them go one step
13 further. We'd have them use T8 lamps, and we
14 don't see any reason why, with a little change in
15 the configuration of the way the lamps are placed
16 in the sign, without causing white spots and dark
17 spots, or uneven luminance, T8 lamps couldn't be
18 used, as well.

19 This industry just seems to be doggedly
20 resistant to changing technology and helping the
21 state realize the urgent need it has to reduce its
22 electricity demand.

23 Now, the attorney for the sign industry
24 mentioned that he thought maybe this ought to be
25 an appliance standard. And frankly, I agree. As

1 a building standard, it only applies to new
2 construction. As an appliance standard, it would
3 apply to both replacement and new construction,
4 and would have broad, much more broad
5 applicability.

6 With regard to peak demand, one of the
7 individuals from the sign industry made the point
8 that most of this illumination we're talking about
9 is at night, yet they specifically want to have
10 indoor signs excluded. Those are the ones that
11 are working on peak. So why should we exclude
12 indoor signs in stores when they are working on
13 peak. And with regard to off peak, I think Mazi
14 pointed out that the demand in California in
15 summer is high and the costs during the electric
16 crisis were particularly high off peak as well as
17 on peak. So this isn't just an on peak issue.

18 With regard to free speech, the Energy
19 Commission has had, as best I can count, for
20 nearly 20 years a building efficiency standard
21 that regulates indoor lighting. It generally
22 specifies 1.2 watts per square foot of lighting
23 for office lighting. Now, to carry this to the
24 extreme, I could allege that that restriction
25 makes it difficult with my aging eyes to read the

1 newspaper, and the indoor lighting standard is
2 infringing on the right of free speech for me to
3 read the newspaper in the office.

4 On the other hand, in the Wal-Mart
5 parking lot, I can read the newspaper better than
6 I can at my desk at the office, because the
7 illumination levels are higher.

8 With regard to lighting zones. The
9 longstanding energy efficiency standard for
10 buildings has different categories of use which
11 specify different lighting power densities
12 appropriate for those uses. Why shouldn't we have
13 the same luxury out of doors? It seems totally
14 nonsensical to have Las Vegas luminance lighting
15 in the middle of Yosemite Park. I don't think the
16 sign industry would want that. I don't think
17 customers would want it.

18 So if we have such standards that have
19 been in existence for a long time and have worked
20 well for buildings, why can't we simply extend it
21 to the out of doors?

22 A lot of issues have been raised here
23 that I think are extremely nonsensical. Higher
24 efficacy equipment can provide the same luminance
25 on signs that the signmakers want. There are

1 multiple technical solutions to getting the
2 luminance that's needed with lower energy
3 efficiency. And we should be able to set a
4 standard in the state for lower lighting power
5 density and let the signmakers and the lighting
6 power -- and the lighting industry and NEMA work
7 to find more efficacious ways of providing more
8 light for less power.

9 Thank you. Those are my comments.

10 MR. ALCORN: Thank you, Gary.

11 Any reactions?

12 MR. KIEFFLER: Yes. Thank you.

13 COMMISSIONER PERNELL: Please be brief
14 so we can -- because we do have another section to
15 go through.

16 MR. KIEFFLER: I agree. I will be.

17 COMMISSIONER PERNELL: Thank you.

18 MR. KIEFFLER: First, I need to point
19 out, and maybe I didn't make myself clear. We are
20 in favor of energy savings. I hope you heard me
21 say require electronic ballasts if you think
22 that's appropriate. That's energy savings. We
23 agree with it.

24 We do not agree with the lumen per watt
25 restrictions, which have no direct relationship to

1 energy savings. There's zero direct relationship
2 in our product between lumen per watts and energy
3 savings.

4 There is and would be censorship of some
5 people's speech. And if that occurs, the rules
6 change. That's what Dr. Claus has gotten all
7 excited about. The Supreme Court has been very,
8 very clear in multiple cases, the most recent one
9 being out of a product that we all would like to
10 see restricted, cigarettes. And you know what
11 they said? You can't restrict signs to try and
12 gain something that should be regulated in a
13 different manner. And that's with cigarettes.

14 You cannot restrict signs with lumens
15 per watt restrictions that are not directly
16 related to the benefit you're -- we're all trying
17 to gain, you and me and everybody else, if it
18 censors speech.

19 MR. ELEY: There's no lumens per watt
20 restrictions in here.

21 MR. KIEFFER: Well, it's the 11 they're
22 talking about. That's --

23 MR. ELEY: That's watts per square foot.

24 MR. KIEFFER: I'm sorry, watts per
25 square foot, that's even messier. I'm sorry I

1 used the --

2 MR. ELEY: Well, okay. You're an
3 engineer, let's get engineering and use technical
4 terms. There's a big difference between lumens
5 and watts.

6 MR. KIEFFER: Yes, there is, Charles.

7 MR. ELEY: Okay.

8 COMMISSIONER ROSENFELD: And would you
9 explain why there's no relationship between watts
10 per square foot and energy?

11 MR. KIEFFER: Because measuring the
12 watts per square foot on the surface of the sign
13 is not directly related to the number of watts --

14 COMMISSIONER ROSENFELD: Well, watts per
15 square foot is the -- and watts per square foot
16 has to have a --

17 MR. KIEFFER: I'm sorry. You're right.

18 COMMISSIONER ROSENFELD: -- balance of
19 hours the sign is on, kilowatt hours, and that's
20 energy.

21 MR. KIEFFER: It is. It --

22 COMMISSIONER ROSENFELD: So how do you
23 justify your --

24 MR. KIEFFER: -- it is light. I'm
25 sorry.

1 COMMISSIONER ROSENFELD: Thank you.

2 MR. KIEFFER: It is light. I was
3 working the logic backwards.

4 Watts, a restriction on watts per square
5 foot will result in different illuminations of the
6 sign face, depending on the many variables I went
7 through, such as cabinet thickness. And some of
8 those illumination levels on the sign face will
9 result in the message not being communicated, and
10 that's censorship.

11 Did I do it right this time?

12 COMMISSIONER ROSENFELD: Well, I heard
13 it three or four times earlier, so I guess that
14 this time I'll hear the same thing.

15 MR. KIEFFER: I appreciate your
16 correction, and --

17 COMMISSIONER ROSENFELD: It's not --

18 MR. KIEFFER: -- by the way, Charles, I
19 need to point out I am not an engineer. I don't,
20 wouldn't want you to leave the room with that
21 assumption.

22 COMMISSIONER PERNELL: All right. We
23 need to -- I'm sorry, sir, but I want to hear
24 something new or I want to move on, because --

25 MR. KIEFFER: That's right.

1 COMMISSIONER PERNELL: -- I should've
2 been at a meeting at 5:00 o'clock, so I'm
3 really ---

4 MR. KIEFFER: My main point was that we
5 agree with energy savings and electronic ballasts.
6 Okay.

7 COMMISSIONER PERNELL: You do agree with
8 electronic ballasts.

9 MR. KIEFFER: Yes. Specify electronic
10 ballasts, one simple sentence; we're happy.

11 COMMISSIONER PERNELL: Thank you.

12 MR. ALCORN: Steve Blanc, do you have a
13 comment here?

14 MR. BLANC: Yeah, Bryan. I'm actually
15 sitting in for Gary. He had to leave. He had
16 something to do with pool pumps he had to go take
17 off to.

18 Let's clarify the issue here. The issue
19 for us is luminosity, it's lumens per watt. We
20 want to see the most efficient sources used in
21 these signs. Ballasts, lamps, whatever. We are
22 not, at PG&E, advocating that we limit anybody's
23 constitutional right to get their message out.
24 But we are asking them to do it in the most energy
25 efficient way possible. That's the nut of the

1 argument here.

2 I think the problem is, and I've heard
3 this repeatedly in the last several hours, that we
4 keep mixing terms, watts per square foot, lumens
5 per watt, lumens per square foot, anteaters per
6 hill, whatever. We're losing the sight of the
7 main issue here, which is we're not talking about
8 cutting these signs back -- and I don't want to
9 even get into the zonal issues. But you do have
10 to limit yourselves in terms of making sure that
11 the luminosity, or the -- excuse me, the efficacy
12 of these signs is as high as it can be.

13 And I think that that's the nut of the
14 issue here. And I think Gary alluded to that when
15 we both agreed with their lawyer that this is
16 actually, the signage is actually an appliance.
17 It's not part and parcel to the building. You
18 don't need a sign on the building to make it a
19 building. Therefore, you can regulate that
20 efficacy. Luminosity is another issue.

21 Thank you.

22 MR. ALCORN: Okay. Thank you, Steve.

23 COMMISSIONER PERNELL: Thank you.

24 Okay. Moving on.

25 MR. ALCORN: Okay. I think we can move

1 to indoor lighting now.

2 Charles is going to do a brief overview,
3 and while Charles is --

4 MR. ELEY: Very brief.

5 MR. ALCORN: -- doing his overview, I'll
6 ask that if anyone wants to make comments, please
7 get the cards to me so I know who you are. Thank
8 you.

9 MR. ELEY: Okay. Let me just say at the
10 beginning that we have gotten some comments in
11 particular from PG&E on this, and we do intend to
12 have some conference calls in the next few weeks
13 to try and resolve these. And we believe we can
14 resolve these issues.

15 This is a summary of the measures. The
16 first one is common lighting systems. There's no
17 changes since the November draft. There has been
18 the suggestion that this be moved to the
19 conservation manual because this is really just a
20 way to demonstrate that you have less than one
21 watt a square foot. It doesn't really constitute
22 a new approach to compliance, in our views. And I
23 think that's, that's probably okay if we choose to
24 do that.

25 There've been, with regard to the whole

1 complete building and area category methods,
2 there've been some -- no changes to the LPDs, but
3 in the ACM there's tables, 2-1 and 2-3, and those
4 tables have been updated to include the lighting
5 power numbers that are consistent with the tables
6 in Section 146.

7 With regard to the simplified tailored
8 method, there've been a few changes. The display
9 allowance change for civic facilities, museum and
10 hotels, has been, that's been modified. There's,
11 the ornamental allowance has been more detailed.
12 There have been some suggestions to limit the use
13 of Method B in the tailored method even further,
14 and I think we're certainly open to doing that.

15 No change with regard to the proposed
16 requirement for bi-level lighting controls. And
17 no change to the requirements for daylighting
18 controls in large spaces under roof.

19 And again, with regard to the acceptance
20 requirements, there have been no additions with
21 regard to lighting. We noted some earlier on
22 HVAC, but there've been none on lighting.

23 Okay.

24 MR. BLANC: Bryan, I was wondering if I
25 could just cut to the head of the line since my

1 car is in vast danger of being confined in one of
2 your garages.

3 MR. ALCORN: Sure, Steve. Actually,
4 you're the only one I have a card for.

5 MR. BLANC: Okay. Well, then, fine.
6 We'll make this a short --

7 (Laughter.)

8 MR. PENNINGTON: Definitely.

9 MR. BLANC: Really, Bill?

10 I want to -- I am Steve Blanc, I'm with
11 PG&E. And I want to speak to the issue of the
12 tailored lighting methodology here for a minute.

13 When this was first brought to our
14 attention it raised a number of concerns for us,
15 and I very briefly want to review these concerns,
16 and then talk about what we think we can do to get
17 through this.

18 Our goals in looking at our part of this
19 process are that we produce codes that are first
20 of all enforceable, second of all are as simple as
21 possible, and third and foremost, that they
22 actually save energy. We think that the tailored
23 situation as presently recommended and not yet
24 fully discussed is too complicated, and, frankly,
25 allows too much light and too many occupancies.

1 It is an issue where, if I can be
2 somewhat allegorical, I look at this, when my
3 consultants start talking to me about it, the
4 first thing that pops into my head is tax forms.
5 And when that pops into my head, I say this is too
6 complicated. And if it's too complicated, people
7 are going to game this thing.

8 There are a lot of issues around what
9 look to be sort of invented special needs, but I
10 think that we and the staff are aware of those
11 issues.

12 What we are proposing is to continue to
13 work with the staff to limit tailored to those
14 occupancies that clearly need it, and high end
15 retail is one, I think museums are probably
16 another. I don't want to get into every one of
17 them. And where it makes sense. As I've stressed
18 it, I wanted to see this as a two to three percent
19 of the market, not 20 to 30 to 50 percent of the
20 market. Because clearly, from the issues that
21 I've seen, and I will defer to Heschong Mahone on
22 the details of this, that it can be interpreted
23 much more broadly, and I think it was the intent
24 of staff to do so.

25 And as I said, we will clearly work with

1 Mazi and the rest of the staff to reach a
2 situation that we all feel comfortable with.

3 And now I'm going to go chase my car.
4 Thank you.

5 MR. ALCORN: Okay. Thank you, Steve.

6 MR. SHIRAKH: May I --

7 MR. ALCORN: Oh, Mazi. Sure.

8 MR. SHIRAKH: I just wanted to
9 reiterate, you know, we have been in constant
10 contact with Heschong Mahone Group. Lynn and I
11 have spent hours on this. And we are well aware
12 of the issues that surrounds this. And I agree
13 with some of the things that Steve said. I
14 disagree with some of it.

15 I have spreadsheets that shows that our
16 proposed method reduces energy drastically for
17 most of the occupancies, compared to the 2001
18 method. The question is whether we can go further
19 and do better. I think so, we can, we can do
20 that, and we're going to be meeting with HMG and
21 our consultant over the course of the next several
22 weeks, and hopefully we can work things out.

23 MR. ELEY: If I could just mention one
24 thing.

25 MR. ALCORN: Charles.

1 MR. ELEY: Charles Eley. I think, you
2 know, our goal was to simplify the tailored
3 method, and I think one of the problems that we've
4 encountered as we simplified it is that we've made
5 it accessible. So what was once sort of this
6 obscure procedure that was rarely used, is now
7 sort of understandable and accessible to many
8 building types where it was not used before, but
9 yet it was allowed to be used in the past. So now
10 that we've exposed it, I think maybe we've
11 discovered some problems that can and should be
12 corrected.

13 MR. SHIRAKH: I think Charles put it
14 very nicely, what the problem is.

15 MR. ALCORN: Commissioners, do you --

16 COMMISSIONER PERNELL: Are we done?

17 MR. ALCORN: Well, yeah, I'm not seeing
18 anymore comments, so I think we're finished. Do
19 have any closing comments?

20 COMMISSIONER PERNELL: I just want to
21 thank everybody for staying, and if there's
22 nothing else to come before the committee, this
23 meeting is adjourned. Thank you.

24 (Thereupon, the workshop was
25 concluded at 5:55 p.m.)

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